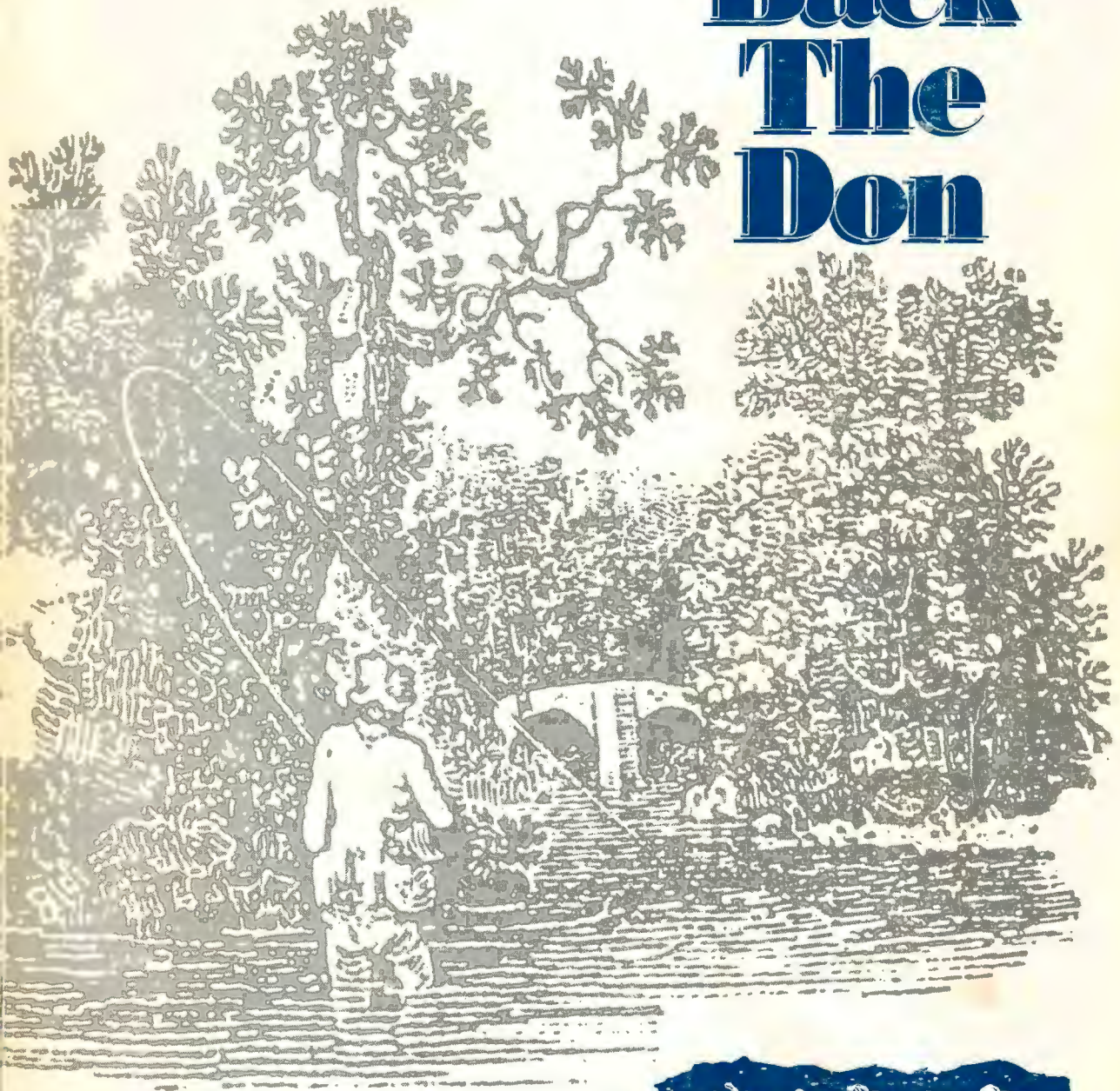


# Bringing Back The Don



The Task Force To Bring Back The Don  
August 1991



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August 1991

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Thanks to the many citizen groups working towards a restored Don River Valley and to the many volunteers and organizations who have worked with the Task Force.

# Foreword

## About This Report

*Bringing Back the Don* is divided into three parts. Part I is the Task Force's introduction, which provides a background for Parts II and III and an overview of future directions. Part II is a brief consulting report on public sentiment with respect to the Lower Don River Valley. Part III is the Don River Valley Study consulting report commissioned by the Task Force which details a vision for a restored Lower Don; it includes specific recommendations for the implementation of this vision.

## About the Task Force

The restoration of the Don River and its valley is an act of faith by the citizens of Toronto that grew out of the concerns of many people for the natural heritage of their City. The Task Force to Bring Back the Don was initiated in 1989. It began as an informal organization of citizens and interest groups that represent various public and private constituencies with interests in the Don. It was formalized in December 1990 by Toronto City Council. The mandate of the Task Force is to undertake initiatives that will contribute to the ultimate restoration of the entire watershed by focusing on rehabilitation efforts within the jurisdiction of the City of Toronto. The Task Force is committed to promoting clean water, restoring open space, and improving public access to the valley. It is also committed to the education and encouragement of community involvement in its decision-making process and to cooperation with Civic Departments, other levels of government, and government special purpose bodies. While these initiatives will take many years to accomplish, the Task Force's goal is to see practical results in the Lower Don by the year 2001, and a continuation of restoration measures beyond that date over the next fifty years. This document is dedicated to establishing an overall vision for the future health of the valley. It also shows what can be done over the next few years in practical demonstration projects, to which local communities with a direct sense of investment in the river's health can actively contribute.

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# **Part 1**

## **Bringing Back The Don**







## Part I Bringing Back The Don

On a spring weekend in 1989, in a rented hall at the Ontario Science Centre, a patient woman sat in the middle of an audience of more than 500 people. They'd come to hear a panel of experts discuss ways to restore the Don River, a Don that the environmental group Pollution Probe had symbolically buried, complete with a coffin, two decades before. They were people who'd been angered, then saddened by the collapse of a river nearly destroyed by abuse, neglect, even misunderstanding. But they were hopeful now because it looked as though something positive might actually begin.

Toward the end of the discussion, which had lasted all day, the woman put her arm up to show she wanted to make a statement at the mike. She held it up several times as others were selected to speak. Then the moderator pointed to her, "the patient lady in purple," and she spoke.

"I'm Phoebe Cleverley. I returned to Toronto a year ago after 17 years on the west coast. I've learned a tremendous amount today. I hope to pass some of it on to my children and grandchildren." There was a slight nervous tremor in her voice as she said, "I want to thank you for what you've done, while I've been away. I swam in the Don River as a child," and then she added firmly, "maybe I'll be able to swim in it as a senior."

You don't have to look hard to find people who are thinking positively about the Don River these days. Some Toronto 'Greens' began to focus attention on the Don with the first annual Don River Walk in 1985; Charles Sauriol has been a Don activist for decades. Yes, they see the same river as everyone else — neglected, fraught with pollution, bound up with ribbons of highway, burdened with a hopeless reputation. But they see more.

First, they see the most important waterway in Toronto's history, the centre of its development. This was not just some friendly stream that supplied fish for sport, it was a vital source of water and, in its lower reaches, a focus of much of the city's early economic activity. On that basis alone, ignoring it now is a little like shoving a faithful long-time partner out the door without so much as a handshake.

But they also see the irony of a great, abandoned swath of land running down the backbone of the city,

a city whose population and politicians make so much of the need for green spaces, parkland, the humanizing influence of little parcels of nature in an urban setting. As developers and others bicker over the zoning of various patches of grass, people interested in the Don look at the fenced-in, dumped-on banks of a once-idyllic river valley, clear their throats and give a polite, "Ah, over here."

And maybe most important of all, the people who think positively about the Don these days see its potential. This is a river valley that was written off. The newer buildings along its lower length have no windows facing the river. Municipalities along the Don had chucked so much sewage, garbage and chemical pollution into the water they nearly tossed in the towel as well.

But a couple of years ago, Toronto began to experience a kind of mood shift, like a parting of clouds. Gradually certain people began to look on the Don not as dead, but as wounded and in need of help. The fact is, despite clear threats, the Upper Don remains quite healthy, the beauty of its wildlife undimmed. Spurred by that hopeful sign, people have begun to notice life in the Lower Don Valley, too. They climb over the chain link fences that inexplicably bar their way and discover wild grasses growing along the riverside, the odd goldfinch hopping among thistle patches, the occasional duck and muskrat nesting along the banks. This life wasn't so abundant ten years ago. These goldfinches and muskrats are pioneers. But if they see value in this neglected part of the Don, so can we.

The opportunity is there, very clearly, to bring the Don back all the way. The key is to start thinking of the lower Don Valley as a place in itself, not as a gap *between* places. We wouldn't dump garbage or build hydro towers in High Park, why do it to the Don? Habit. It got easy to think of the river as unworthy of our concern, to take advantage of it, abuse it. For the last fifty years we've taken the easy way with the Don River and we've robbed ourselves of a great resource — a natural setting, a learning tool, a place where urban pressures recede, rather than converge. Now it's time to turn it around, to give nature a new chance to take hold in the middle of the city and make the city healthier for it. That's what the Task Force to Bring Back the Don is trying to make happen.

## What, or Who, is the Task Force?

The same mood shift that drew 500 people to a rented hall also moved some Toronto city councillors to put the word out to the public – “If you’re interested, we’re interested” they said in essence. And they called on people to get involved. That’s how we got started, by seeing the need and the opportunity offered by City Council to do something about it. At first we came together on an interim basis. Then we were given a budget – with 50 percent of our money coming from the Toronto Harbour Commissioners – and status as a permanent task force.

As a City of Toronto task force, we’ve been focusing on that stretch of the river known as the Lower Don, which lies within the city’s boundaries, the infamous stretch of forgotten valley. We know that many of the problems afflicting the Don begin in its upper reaches, where a large proportion of the storm-sewer pollutants continue to be poured into its waters. We know that to fully restore the river, the various governments with separate jurisdictions along its length will have to become involved and a grand, all-encompassing strategy will have to be conceived and implemented.

## What the Task Force is Trying to do

Somewhere along the line, as the pace of life quickened and the demands of transportation and industry increased, Toronto forgot that the Don was a river. The “valley” became a “corridor,” and the river became the city’s biggest drainage ditch. Look at the former mouth of the Don, which now takes a sharp, right-angled turn into the Keating Channel. The water, which still starts off fresh and pristine at the river’s upper reaches, now slinks ignominiously under the Gardiner Expressway, heavy and sloppy with sediments, into the channel and then to the lake.

Perhaps a hundred meters up, along the western bank, a lonely little tree appears to have been decapitated so that drivers on the Don Valley Parkway can better see a billboard selling jam. The slogan on the billboard? “For the purist.”

A river shouldn’t have to deal with ironies like that.

But we also knew we couldn’t wait for that to happen. The Lower Don couldn’t wait. Something needed to be done to start the process. So for the last two years we’ve conducted tree plantings along the riverbanks; we’ve held discussions with citizen’s groups; we’ve talked to elementary school children about the problems and possibilities of the Don. We’ve made use of a great supply of volunteer effort and we’ve made a small beginning.

At the same time we knew a strategy, at least for the Lower Don, was urgently needed. With the help of environmental consultants like Toronto’s Michael Hough, internationally renowned Canadian hydrologist Dr. Robert Newbury and concerned citizens, the task force has worked to devise just such a strategy – a way to bring back the Don.

We think we’ve got it. It’s a radical, challenging proposal. Yet, as you’ll learn, it’s also pragmatic. It accepts certain limitations, which technical studies will make clear. It’s reasonably priced. In conception and philosophy, it couldn’t be simpler.

And there’s the basic principle of the Task Force’s plan – start thinking of the Lower Don as a river valley. Do that and suddenly many things become clear. For instance: rivers don’t flow in a straight line, they meander their way to the mouth. Realize that and the pole-straight channelled section of the Lower Don appears absurd.

Left to obey its natural laws, a river ends in a delta of cleansing marsh grasses and soils. When you understand that, the Don’s right angle turn into the Keating Channel seems ludicrous.

It’s this kind of clear re-thinking of what a river is meant to do – and what the Don River did itself before development interfered – that has led to the Task Force’s three-stage restoration strategy. A number of restoration options could be pursued; what follows is our preferred strategy. Here’s what we have in mind...



In the first stage, at the river's mouth, a delta marsh would be the centrepiece of a revitalized Portlands. It would mean letting the sediments and silt from the river flow into a controlled Portlands area. Eventually the natural processes would form a large delta approximating what was there originally.

The possibilities here are exhilarating. The delta would be a natural filter, its hillocks and cattails and aquatic grasses absorbing many of the pollutants that would otherwise flow into the lake. It would provide a natural habitat for pike, bass and perch, kingfishers and herons and muskrats. It would enhance the beauty of the waterfront, actually raising the value of surrounding lands and encouraging development. And it would be a wonderful recreational and learning opportunity. Boardwalks would span its breadth and allow children and adults to see nature up close.

To make this delta form naturally and continue forming with little maintenance, a second section of change is required in the channelized stretch of the Lower Don. Here, at the moment, there is virtually no slope to the river. That means sediments lay themselves down in the riverbed instead of heading to the mouth and hundreds of thousands of dollars are spent every year to dredge the silt out. A river shouldn't require that kind of dredging and with help, the Lower Don won't in future.

By increasing the river's grade as water heads for the mouth, sediments will be carried right on through to the delta, where they'll be put to good use. Placing limestone weirs, like partial dams, at points above and along the channelled section of the Don, could do the work of steepening the river. At lower water levels they'll also create rapids to get oxygen back into the water, give spawning fish a place to rest and even produce that subtle rippling sound people associate with healthy rivers, to actually mitigate the relentless roar of cars along the D.V.P.

Along this stretch, new forests of willow, maple and oak would be planted to shade and cool the water and provide fish habitat. Fully reforested, this newly verdant channelized section would open a wildlife corridor from the river valley to the Leslie Street Spit and the lake. And here the Don's neighbours would come to cycle and picnic and fish. That's right, along what is now the ugliest section of the Don. It's not just a dream: it can be done.

Further up the river at the third stage of restoration, where the valley widens out beneath and beyond the Bloor Street Viaduct, a headpond would be formed. Water would collect here before flowing down over the weirs toward the river's mouth. When it isn't flooded during spring runoff or storms, this area would be a smorgasbord of habitats — a meadow with tall grasses, a valley of cottonwood, willows and dogwood shading rest areas, walking paths and the river itself and a marsh where cattails and other aquatic plants would provide protection for fish eggs and, combined with the delta below will help absorb contaminants that now make their way to the lake. And specially for humans — a restored Brickworks could house educational tools and artifacts to introduce visitors to the history and value of the Don.

In a nutshell, that's the vision of the Task Force to Bring Back the Don. A three-part plan to return the river to an approximation of its original form and in so doing, start to clean up the water that pollutes Toronto's beaches, enhance the value of surrounding land, provide tremendous recreational opportunities and bring a bit of the gentle life-affirming influence of nature to the middle of a city that badly needs it.

Before any of this is carved into figurative stone, of course, much work needs to be done. The details of the vision should be subjected to a round of studies to precisely determine their environmental and economic impact and ensure their feasibility and compatibility with other projects (development of the Portlands, for example). In the process of analysing Michael Hough's good ideas, we may discover even more that can be done.

We think studies will show the vision is logical and pragmatic. It's certainly fresh. And with the support of Torontonians with and without political stripes, it can be achieved.

## The Immediate Steps

None of this can happen overnight. It must be done incrementally, a little at a time. The re-creation of a river habitat is no single mega project; as it states in Michael Hough's Don River Valley Study, it's a 15-year process at least. In the meantime, while that gradual work goes on, much can be done quickly to make better use of the Lower Don and improve its present condition.

We've talked to Torontonians who live and work along the Don and we based the Don River Valley Study on the results of what we heard. Naturally we continue to solicit their opinions and ideas and so far, here's their most telling message: they'd like to enjoy the valley now, but they can't. There's simply no access. Chainlink fences belonging to utility companies, city works departments, the railways and other interests line the river from its mouth to beyond the Viaduct. Right now there is but *one* door to the Don – a new flight of stairs at the Riverdale Footbridge – for which the Task Force lobbied hard. Besides that, for six kilometres – nothing. To get to the river and the Pottery Road bike path, intrepid cyclists and strollers risk grave injury by climbing over the jagged fence tops. Not only does this kind of barrier discourage recreational use of the Don, it encourages dumping and other abuses. And it makes the river valley unsafe for those who use it positively, by making it virtually impossible to get out.

Increase the access to the river and you increase the likelihood the people will begin to see the Don as a destination. Torontonians often say, "Let's go to Harbourfront," and "Let's go to the park." They don't say, "Let's go to the Don." But give them a way and they will.

Just as immediately, we can begin to improve the habitats along the river. Invading plant species like Purple loosestrife, Japanese knotweed and Norway maple aren't meant to be near a river – they don't support the wildlife that calls a river home. If we reforest the banks with fast-growing cottonwood, willows and other river species, we can prevent the invasion and help the recovery along.

This sort of work is already being done by people who care deeply about the Don. With the support of management, Carmela Clarke, an employee of the Simpsons Downtown store, organized 1,200 fellow Bay/Simpsons workers to come out on a rainy April Sunday to plant more than 3,000 trees and shrubs on the banks near Riverdale Park.

And it's not just a group affair. One woman arrived at the site of an Earth Day riverbank replanting, only to find the replanting had been finished the day before. Rather than leave, she asked a parks worker what more could be done and spent the next four hours spreading mulch around hundreds of freshly planted seedlings.

The energy and the desire is there to bring back the Don. It will take a while. And we haven't got all the answers yet. But if volunteers from all walks of life can come together in a common purpose, as Torontonians have shown they can, there should be a way to bring the disparate governments and government agencies together to support the cause. Two regional governments and six local municipalities must somehow cooperate to make this work – but the benefits will be just as far reaching.

Bringing Back the Don is essential to improving the quality of life in Toronto. And the proposal presented by the Task Force to Bring Back the Don is the simplest, most practical and the most cost effective way to get it done. It can be implemented in concert with other projects, such as the Ataratiri development. It can further the aims of proposals already in place to improve the water quality of the Don, including the sewer improvements to be undertaken by the City's Department of Public Works and the Environment.

It can make many things possible that would otherwise be impossible. A hundred thousand Phoebees would like to one day swim in the Don. Sewage treatment plants alone can't do the job. But let the natural river systems work and one day it will happen.

Now we want your reaction. Read the report and respond, with suggestions, with vocal support, or with two hands dug into the riverbank mud. Here's your opportunity to have a say in how liveable and vibrant our city will be, not only a decade from now, but for hundreds of years.

Put simply, Bringing Back the Don may be your best chance to invest in the future of Toronto.

#### *Swimmers on the Don*

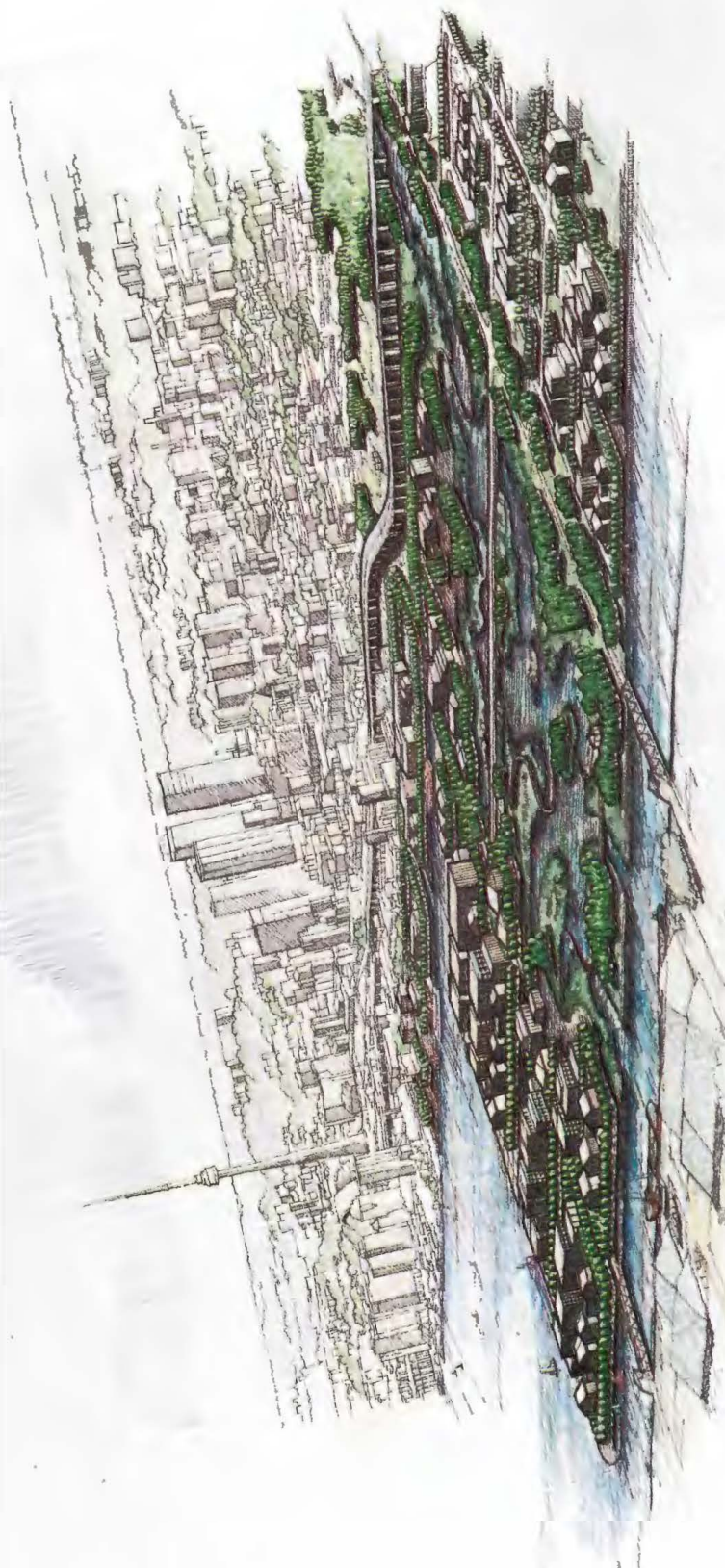




Portlands







Port Marsh/Don Delta Strategy



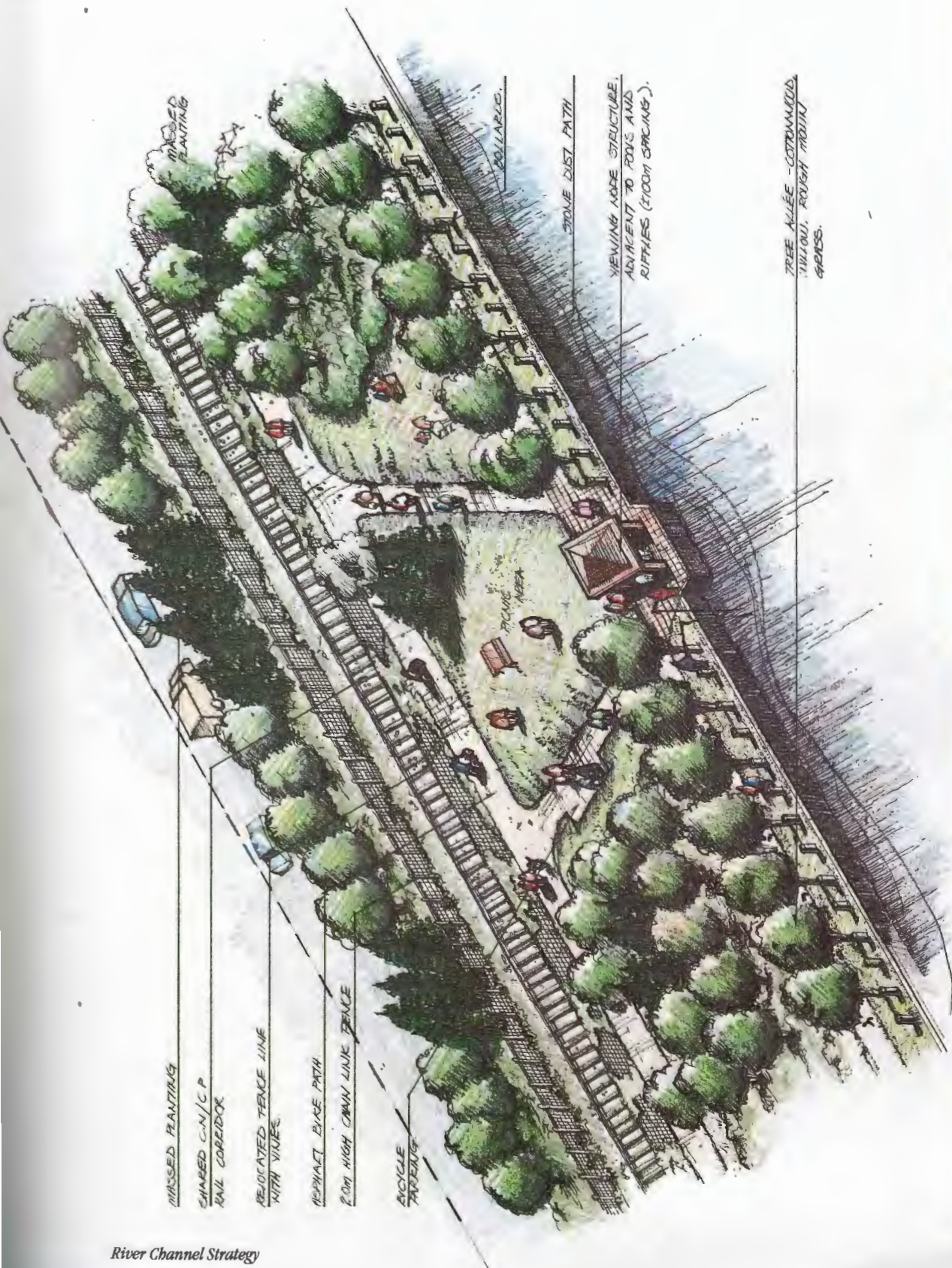
*Port Marsh Area – Conventional Development*



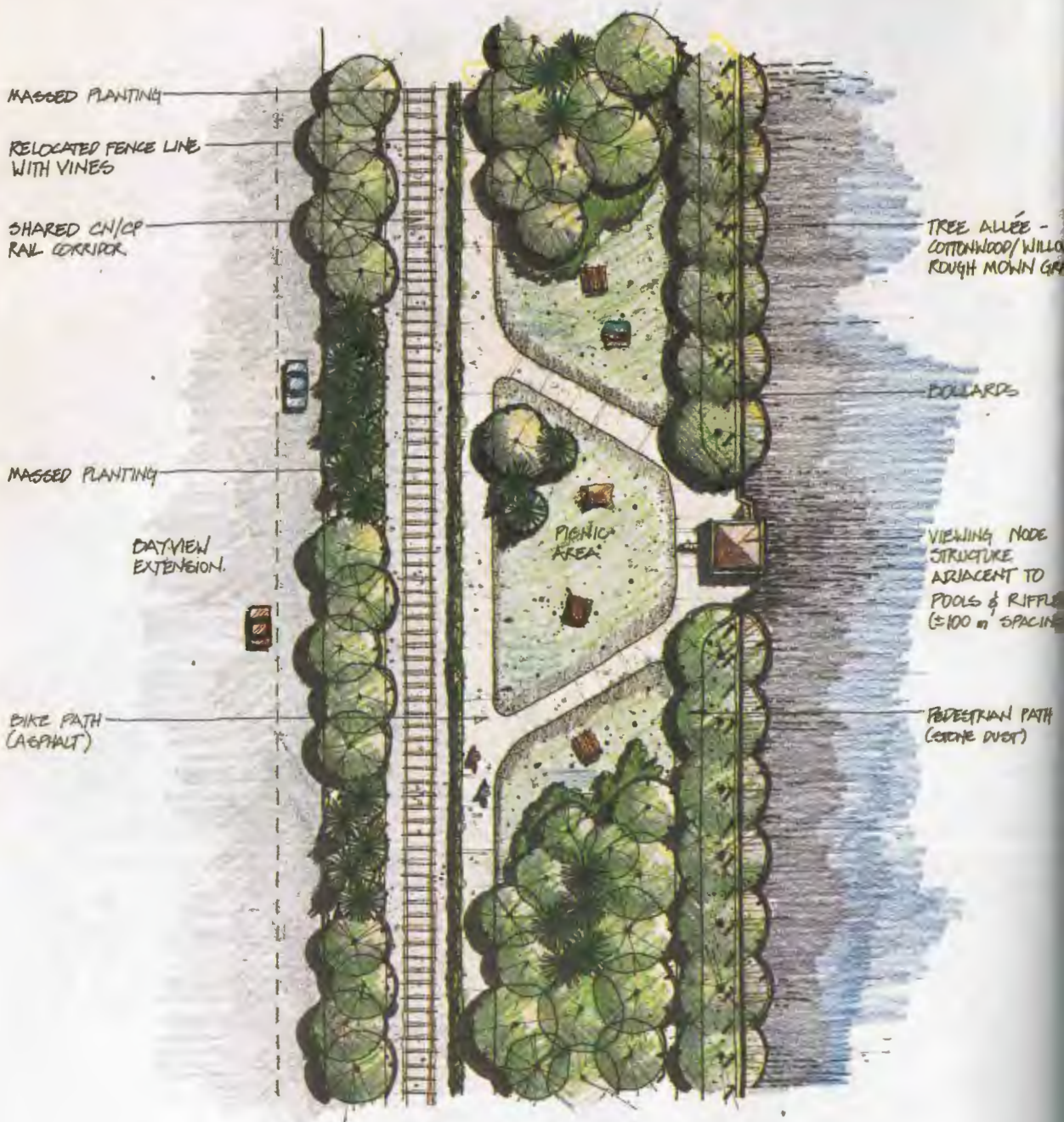


*River Channel*

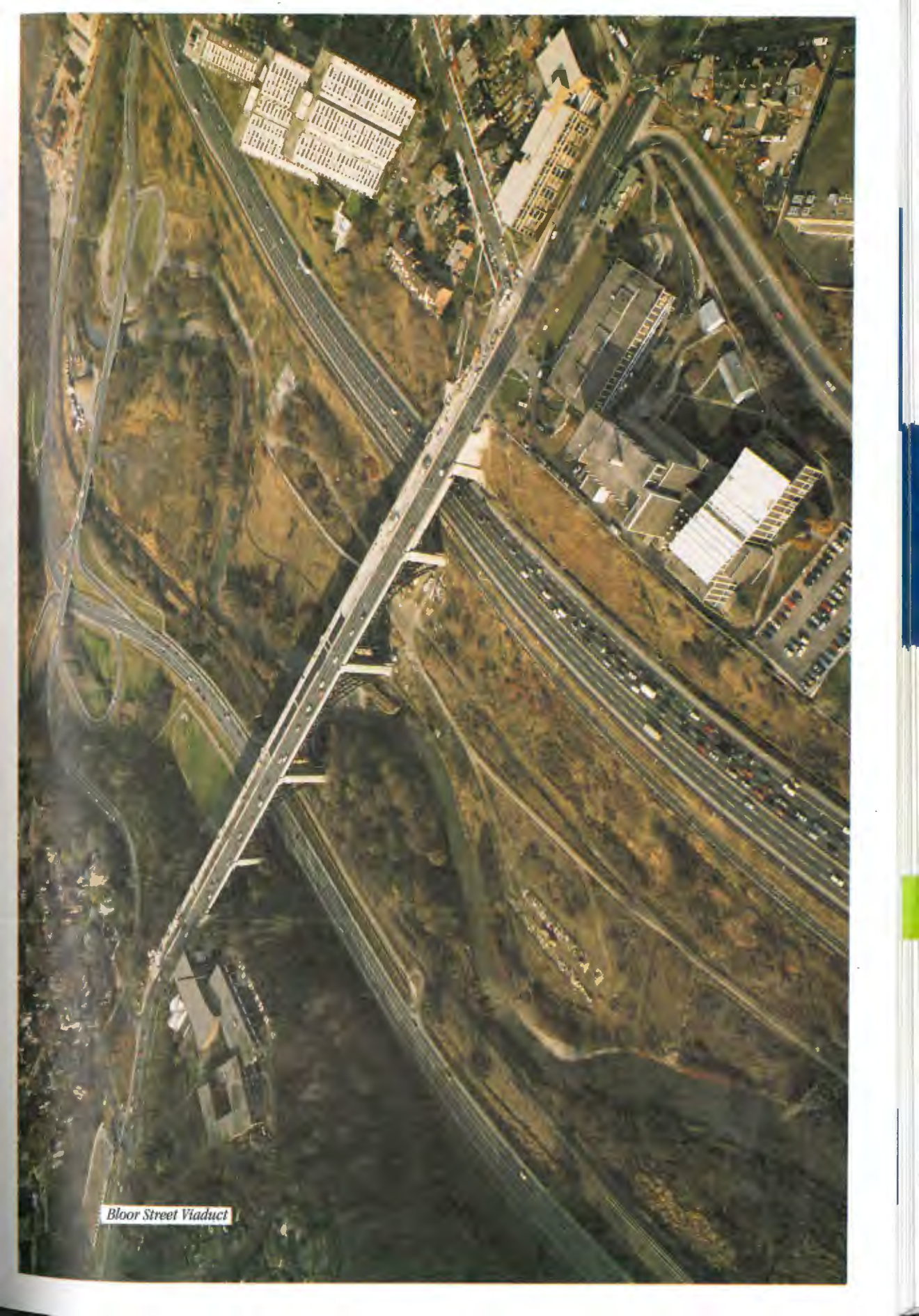












*Bloor Street Viaduct*





*Bloor Street Viaduct/Rosedale Marsh Strategy*



## **Part 2**

### **Public Sentiment**



*The Task Force is committed to involving citizens in the restoration of the Lower Don. It is committed to consulting with local communities and interest groups, involving citizens in its decision making process and involving citizens in hands-on rehabilitation projects. Many examples illustrate this: the Task Force itself is made up almost entirely of citizens and its meetings are open; all public forums, promotional events, tree plantings, communications are built around making the Don restoration a community project.*

*The latest and most formal citizen involvement exercise was done during winter 1991. The consulting firms Jim Ward Associates and Ken Wyman Associates were retained to hold focus groups and a public forum to define public sentiment with regard to the Lower Don River Valley. The Consulting firms were asked to focus on people's impressions of the Don and their opinions concerning the preferred character of a restored Don River Valley. The results confirm the isolation of people from the Don today, the extent of dissatisfaction with the state of the river valley, the remembrance of a more beautiful past and the enthusiasm for restoration.*

*The Task force will continue to hold consultation focus groups and meetings on an ongoing basis to guide the restoration process. These will include public consultation on the **Bringing Back the Don** report.*

## Part 2 Public Sentiment

### Focus Group and Public Forum Analysis

#### 1 Background

In trying to understand public sentiment towards the Lower Don, ten focus group discussions were held involving communities affected by the river valley. Nine of these discussion groups met in neighbourhoods close by the Don, i.e., Rosedale, Broadview/Danforth, Riverdale, Cabbagetown, Don Mount Court, Regent Park (3) and South of Queen Street. The tenth group, at City Hall, was attended by representatives of 'special interest' groups, e.g. ornithologists, naturalists, cyclists.

We structured each of the focus groups in a similar way. After introductions and an overview of the Task Force's mandate, slides of the Lower Don were shown and a discussion begun. Generally the discussions were guided by ten questions:

1. What do you know about the Lower Don Valley?
2. What specific features are you familiar with?
3. What's important to you about the Don Valley?
4. What part of the Lower Don is important to you?
5. How often do you go there?
6. What do you do when you go there?
7. Do you know of other people who go there?

8. What problems do you have in getting to the Valley?
9. What image does the Lower Don Valley have in your mind?
10. What should the Task Force be doing?

Participants were also given the opportunity to browse over aerial photographs of the Lower Don and a large-scale map of the area.

We also held a public forum at St. Lawrence Hall which utilized a plenary-small discussion group structure. After an introduction to the work of the Task Force and an overview of the focus group findings, the public forum participants broke into seven discussion groups of about twenty people each. The groups were then asked to structure their discussions around the following four questions:

1. What are your major concerns?
2. How should they be addressed?
3. What should the Task Force be doing?
4. What does 'Bring Back The Don' mean to you?

#### 2 Major Findings from Focus Groups and the Public Forum

The major findings arising from focus group discussions and the public forum are discussed below under seven subheadings: (i) images and impressions; (ii) best known features; (iii) what people do; (iv) problems of access; (v) importance of the Don Valley; (vi) frequency of visits; (vii) what the Task Force should be doing.

##### 2.1 Images and Impressions

The images and impressions participants had of the Don Valley range from a sense of nature in the city to a sense of it being a polluted swathe of land following an equally polluted river through the city.

The most common images and impressions, however, tended to be negative. 'Polluted' was the most frequently used word to describe the river and the valley. Other negative terms and expressions used included 'smelly', 'dirty' and 'dangerous' (some talked of dead bodies, suicides and the possibility of children being molested). Some participants described the river and the valley as a receptacle for rubbish and unwanted stolen goods; "If you can't sell it, throw it in." Some were bemused by the number of shopping carts they see down there. Water quality was a major concern of participants at the public forum.



Personal safety was a major issue for many. Several participants said they would never go into the valley alone. Connected with this was the frequent suggestion that there should be police foot or bike patrols in the valley. Young people talked of an untrusting police presence and they thought that police should be more involved in making the Lower Don a safe place rather than harassing young people. Several parents said they would not allow their children to go into the valley unsupervised.

Several participants talked of a past when the valley was a much more pleasant place than it is now; this past ranged from twenty to fifty years ago. One senior citizen said, "It used to be lovely forty years ago but now you can never go there."

Young people tended to feel that the politicians are not really interested in doing anything about the Don, otherwise action would have been taken long ago. Others felt that politicians' awareness needs to be raised substantially.

On the positive side, a few participants saw the valley as a bit of country, as a piece of green and as an important historical landmark.

## 2.2 Best Known Features

Few participants were able to name specific features within the valley. The most frequently mentioned were the large trees close to Castle Frank, the large tree and what used to be the swimming hole (referred to by some as the "Bare-Assed Beach") and the Riverdale footbridge.

Participants' sense of the valley was more in terms of the 'gross features' – e.g. wide in the north, around the viaduct and much narrower in the south – south of Gerrard. This tends to come from experiencing it largely by driving by or crossing one of the bridges in public transport vehicles or walking.

## 2.3 What People Do When they Go into the Valley

Most participants were not regular users of the valley. For those who do use it the most common use appears to be dog-walking. Some go as bird watchers; some go to look at plants and/or animals; some cycle; some jog. For most participants, however, the valley played no role in their lives.

## 2.4 Problems of Access

The number one access problem is that the valley was an unknown to most participants in the groups. Even for many who would be interested in going there, they had no idea how to gain access. One participant who lived on River Street was a keen cyclist and had been wondering for some years how to get on to the bike path. Several Cabbagetown residents expressed frustration that the valley is so close to them and yet so difficult to get into.

For cyclists who have used the bike path, there was considerable anger over the fences and gates that make it an obstacle course. Cyclists have real problems understanding why a very wide bitumenized surface has been laid on the west bank, from the Riverdale footbridge south, when a seven-foot-high fence has been built across the path less than a mile north of there.

The high fences are seen as a major obstacle for most of the group participants. Senior citizens living at Oak Street are annoyed that such barriers are put in their way. They would like access near to their homes so that they can "sit on a bench by the river in the summer".

Almost all participants agreed that there need to be more access points to the valley. Several suggested stairways at points where bridges cross the river. Holes in the fence were seen by many as the only visible access points to the valley.

Several spoke of the need to have access link-ups with designated parking areas for the disabled and elderly. Public transit access was seen as an important area to explore.

For some the need for more access points is closely related to the safety and personal security issue. Some feel that once they are in the valley they are 'trapped', unable to escape or to seek help in a threatening situation.

## 2.5 Importance of the Don Valley

When asked what is important to them about the Don Valley, many participants said that it isn't. However, a majority of participants did see the valley as being currently or potentially important in their lives. For some it ties them to the history of the city; for others it

is the brilliant display of fall colours. Its very closeness is what makes it important for several.

For several of the special interest group participants the valley is of enormous importance. The ornithologists are acutely aware of the variety of bird life in the valley and others are keenly interested in its variety of animal life. Cyclists see it as potentially a key Toronto resource.

In several of the focus groups and particularly at the public forum, there were discussions over the pros and cons of manicured parklands versus natural areas. The debate came down strongly on the side of a natural areas approach to the valley.

## 2.6 Frequency of Visits

Most focus group participants do not visit the valley frequently. Some never go at all, a small number are frequent users, going as often as once a day (to walk the dog) or several times a week. A few participants had not been in the valley for over twenty years and felt that it had deteriorated so much for the worse it was not worth visiting.

## 2.7 What the Task Force Should be Doing

There was a keen interest on behalf of most focus group participants to say what the Task Force should be doing to make the valley a better place. Participants suggested that the Task Force should:

- Open the bike path. One participant suggested that the bike path be officially opened – with fanfare – on Earth Day, 1991.
- Make the bike paths narrow and have them made of brick, which is porous and would reduce the run-off problem. They are also more aesthetically pleasing.

- Raise people's awareness about the valley. Have outreach programs to schools. Involve local neighbourhoods, ratepayers' groups, etc.
- Organize walks in the valley.
- Clean up the water.
- Develop a membership organization.
- Coordinate the actions of the different municipalities along the Don.
- Integrate the effort with other relevant initiatives, e.g. the Crombie Commission, Ataratiri, Leslie Street Spit.
- Create a newsletter. Also, utilize existing newsletters of ratepayers' groups, neighbourhood groups, special interest groups.
- Connect the valley with the lakeshore, Leslie Street Spit and Martin Goodman Trail.
- Increase the number of access points.
- Install picnic tables, barbecues, shelters, park benches.
- Develop a children's playground.
- Stop the dumping and polluting,
- Educate the wider community about household and other pollutants that end up in the Don.
- Plant trees.
- Have cafes at major entrance points, where car parks are.
- Have police foot and/or bicycle patrols.
- Encourage food vendors at appropriate locations.
- Organize clean-up crews, trail builders, etc. (as with Bruce Trail model)
- Remove construction materials near the viaduct.
- Install signage at entry points and at key locations.

# 3 Community Consultation – Conclusions

Our overall impression was that there is not a high level of interest in the Don Valley on the part of those who live nearby. But, among those who are interested, there is anger and frustration over what they see as a delay in getting the place more 'clean, green and accessible'. There also is a tone of sadness among those who used the valley much more twenty, thirty or forty years ago; they feel the valley has deteriorated substantially over this period. No longer can

they swim in the river or picnic by the banks, etc. However, most participants appear to believe the valley has real potential for being something important in their lives.

Few participants were familiar with the valley on a first-hand basis, although some visited on a regular basis, most often to walk dogs; jogging and cycling are also fairly common reasons for using the valley.

There is a very low level of awareness of what is there. The valley is a mystery to most. How to get into it is an even greater mystery.

The personal safety issue is an important consideration for many. Some said they would never venture into the valley alone, because they would feel unsafe and several said they wouldn't let their children go down there because they see it as 'dirty and dangerous'. Also there are virtually no access points for emergency services. People in danger may find themselves having to walk at least two kilometres to find an exit.

One of the major attractions about the valley for focus group and public forum participants is its nearness to them. It is this nearness that probably gives the valley its greatest potential. It is also this nearness, in the absence of ready access, that leads to a high level of frustration. For many it is literally "at the end of my street, but I can't get in there."

For a majority of the participants involved in this process their vision of an improved valley is a valley that is as close as possible to its natural state. Few participants wish to see the valley developed as a manicured parkland. However, several recognize the tensions between making the valley more accessible and returning it to a 'state of nature'.

It also has to be recognized that many people enjoy the valley 'from afar', as they drive through in their cars. The display of fall colours for the motorist was one of the most frequently mentioned positive aspects.

A considerable number of tasks for the Task Force have been identified, all the way from very concrete tasks such as the opening of the bike path to less tangible activities such as coordination of the work of the relevant municipalities.



# **Part 3**

## **Don River Valley Study**



*In 1990 City Council directed the Task Force to develop a strategy for restoring the Lower Don River Valley. A consulting team led by Michael Hough of Hough Stansbury Woodland Limited was retained to prepare the strategy paper on the basis of public sentiment towards the river valley. The emerging vision is subject to detailed technical feasibility study. It is the objective of the Task Force to conduct a thorough public review process and move the vision on to the detailed technical study stage.*

# Don River Valley Study

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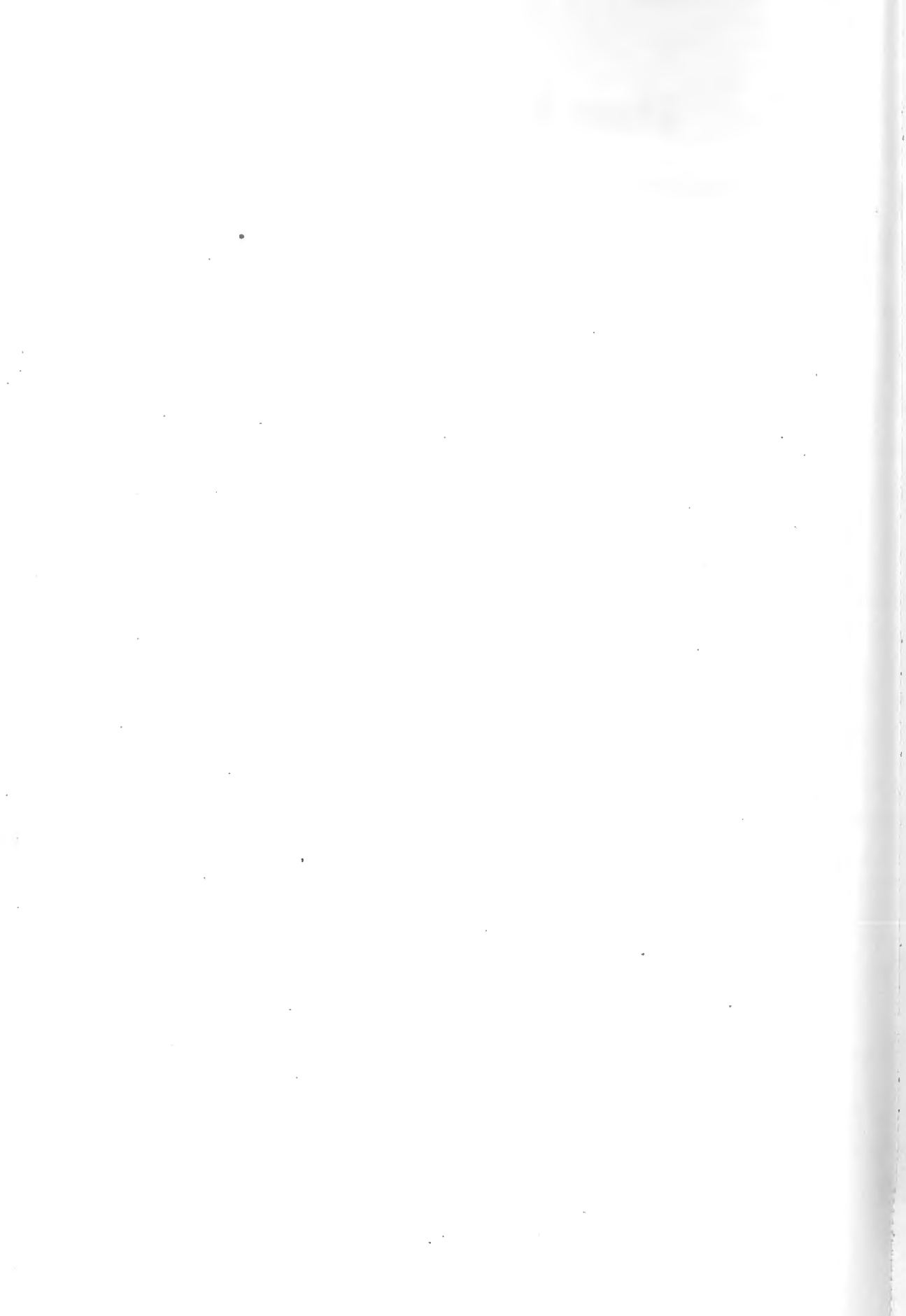
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# Part 3 Don River Valley Study

## The Strategy in Brief

### A Place for Nature and People

This study charts a course for the future of the Lower Don River into the next century. The very nature of the task implies that it will never be finished in the way a building is finished, but will continue to evolve and be enriched over a long period of time. The purpose of this document is to establish a vision for what the Don could become and to initiate a process of restoration. People will begin to think about the Don as a destination and a link to other places. Children will once again fish in the river; school groups will take field trips to the marshes; families will walk and cycle along the river edge; and bird watchers will again be drawn to its wood, meadows and estuary where the Don meets Lake Ontario. They will remember the City's ongoing commitment to the goals of the Task Force to Bring Back the Don; the mandate to correct the mistakes of the past and to see practical results by the year 2001 and beyond; the determination to bring life back to a degraded and forgotten place; the collaboration needed between citizens and government to achieve these goals; and the difficulties to be overcome.

The study outlines the overall strategies for restoration, examines some options within a prepared strategy agenda, suggests areas for further study and suggests general cost allowances and phasing for the work to 2001 and beyond.

### The Vision

Starting at the lake, the journey up the valley will pass through three distinct kinds of place. At the river mouth, surrounded by high quality "green" industry and commercial developments, the visitor will look over a large 50 hectare open space – a delta and marsh with the river flowing through it to the lake. A small research station, possibly one of the first "green industries" to locate in the Toronto Waterfront Regeneration Land Trust, will monitor the delta's evolution and provide information and exhibits on its research. Toronto citizens will learn the reasons for the delta; how it has minimized the costs of dredging in the

Keating Channel (a task that became necessary after the channelization of the river and urban growth eliminated its natural functions); and the significance of estuarine marshes. They will learn about how the river works throughout the watershed; how the delta is made possible by steepening the lower channel to allow river sediments to collect at the mouth and not in the channel; how the creation of a new headpond north of the Bloor Street viaduct increases the drop to the mouth; and they will also understand how changes to river hydrology have created new and more complex habitats for wildlife, places to spend quiet leisure time and the return of beauty to a once degraded valley.

Walking north, the character of the Don will change from the open and natural environment of the delta to a somewhat more formal, linear, urban character of the channelized river, richly landscaped with trees lining the water's edge, widened pathways separated from the railway by dense planting, sculpture, places to stop, picnic, fish and listen to the river. Stairs and ramps would provide access to the path from the bridges crossing the valley, increasing access and safety and the City and its buildings would again face the valley and see it as a source of pride.

At the Rosedale Valley Road and ravine, travellers up the Don will enter a third landscape, a place that broadens out into a large floodplain, with small marshes, meadows and forested slopes, walks, interpretive stops and picnic places made possible by the newly created headpond that floods several times a year. The floodplain experience will again change into a fourth landscape – the narrow forested ravine tributaries that link up with the local neighbourhoods and parks of the City.

Throughout the walks up the Don, there will be evidence of Toronto's industrial history: Todmorden Mills, one of the first water-driven sawmills in the valley; the Don Valley Brickworks, where the bricks that built much of old Toronto were once made; the Necropolis; the Bloor Street viaduct. There will also be evidence of the people who have been associated

with the valley: Governor and Mrs. Simcoe, Ernest Thompson Seton, Henry Scadding, Charles Sauriol. There will be interpretive programs (part of the recreational pathways) that tell of the restoration projects underway; the different types of habitat such as wetlands, meadows, mature and emerging woodland; and the wildlife that can be found there. And over the years, the valley will be alive with community groups planting trees, restoring minor stream tributaries and other projects that are important to them. The valley would be a laboratory for school groups and universities to learn about nature in cities, the significance of the valley as a flyway and link with its source at the Oak Ridges Moraine, issues of water quality upstream and the evolution of the valley's rebirth as a whole.

## An Incremental Approach

This picture of the future is intended to be bold, imaginative and broad in its vision. It must, however, also be small scale, incremental and achievable. While some moves in the rehabilitation process are relatively large in scale (for instance the hydrological works underlying the concept), there are many others that are not. Examples include *reforestation* – a central component in the rehabilitation of the Don. Reforestation can be accomplished through small projects by numerous community groups, professional contracts by the City and other means well into the future. *Tributary streams and ravines* can be returned to a state of health hydrologically by re-exposing waterways, recreating original alignments, constructing small marshes and planting. *Reducing peaks and lows* in river flow by encouraging infiltration into the soil in built-up areas must be accomplished over many years through community cooperation, educational strategies and public works projects. The process is flexible and is dependent on feedback from small-scale projects over time.

Projects of this kind must be gradual for a variety of reasons that have to do with *political agendas* (the formation of partnership agreements), *funding* (some work may cost very little when spread out over a number of years, while other will cost more), *the scale of the undertaking and the linkages to the larger Don picture* (the Lower Don is a small but highly significant part of the watershed and its bio-region). Further ways in which projects may be

phased over time are included in Section 3 (Phasing Strategy).

Finally, it is important to recognize that it took an average of a hundred years to degrade the Lower Don to its present condition. It is not surprising that reversing this process will take 20 or more years to accomplish and require money, political will and knowledge.

## Summary of Key Findings and Recommendations

### 1. Hydrology

The basic elements required to create habitat and recreation begin with the river and are inextricably linked:

- the creation of a 50 ha Delta/Marsh in the Portlands at the mouth of the Don that establishes a renewed connection between the river and the lake (Keating Channel to Ship Canal; Don Roadway to Cherry Street). This open space provides a major focus for low-rise high density industrial developments that could surround it, the entire complex contributing to "green" objectives. It also provides renewed aquatic habitat, research opportunities and recreation;
- a flushing channel with a steepened gradient to carry sediments down to the delta with associated bicycle and walking trails and passive recreation opportunities;
- a weir and headpond at Rosedale Valley Road that raises the channelized river 2–3 metres above its present level at this point in the valley and provides the gradient required to flush sediments to the

Audubon Park Zoo, New Orleans





mouth in times of flood. It also provides extensive marsh habitat and passive recreation opportunities.

The hydrology concept would greatly reduce dredging in the Keating Channel and eliminate barging to the Leslie Street Spit (currently estimated by MTRCA at between \$500,000-\$600,000 per year).

It is recommended:

- that this general concept be adopted by the City as a basic strategy for restoring the Lower Don, recognizing that further, more detailed studies will be required to verify and develop the details of its components;
- that in the context of future Floodplain Management Policies for the Lower Don being prepared by MTRCA, current assumptions that dredging will be required in perpetuity should be re-evaluated, using the current hydrological modelling program.

## 2. Water Quality

This open space study is a natural and necessary extension of the ongoing City of Toronto Sewer Master Plan Study presently underway to determine the feasibility of virtually eliminating combined sewer overflow and the control and improvement of storm sewer discharges.

The objective of the sewer plan is to improve water quality. Several points should be made in this regard:

- within the Don River watershed as a whole, the City of Toronto contributes 5 percent of the river's water quality problem, whereas the remaining 95 percent emanates from municipalities upstream;
- the City's sewer separation program is expected to enhance the quality of stormwater flowing into the Lower Don (from within the City's sewershed) by 50 percent;
- based on these estimates, the net engineering assumption of water quality improvements to the Lower Don would be 2.5 percent of the entire watershed;
- the marshes proposed for the Lower Don are efficient at removing contaminants from stormwater. Aquatic plants can remove on average of between 40-80 percent of all contaminants found in stormwater. Thus, water quality in the Lower Don could,

with the development of settling ponds and aquatic habitat (in low-flow river conditions), be further enhanced to 5 or more percent. In addition, the marshes of the Lower Don would also be treating upstream water as well as that received within the City sewershed. Thus, the contribution to overall water quality of the river by the City's sewer programs is likely to extend well beyond the quality achievable solely from engineering works. In addition to their role in water quality enhancement, wetlands in the valley bottom contribute to the evening out of peaks and lows of current river flow.

It is also important to recognize that the main sources of combined sewer overflow pollution originate in Toronto and East York. By removing the problem in the Lower Don, a much greater proportion of engineered improvement than 2.5 percent is achievable, since sanitary and storm sewers are separated in municipalities in the Don's upper reaches.

It is recommended:

- that the City initiate further studies of aquatic vegetation to determine appropriate wetland design and management procedures;
- that wetland development and impoundment ponds be initiated as part of the implementation of the City's sewer separation program;
- that a long-range program be initiated to reduce direct stormwater inflow into the river from buildings and hard surfaces within the Don River sewershed through infiltration into the soil. Techniques such as disconnecting downpipes from storm sewers, infiltration trenches and alternative catchbasin design could be explored depending on the feasibility of implementing such measures;
- that the City work with other municipalities, senior levels of government and community groups to improve water quality conditions and habitat within the Lower Don and within the entire watershed.

## 3. Access

Improved stair access to, along and across the river is proposed in its lower and presently inaccessible, channelized reach. Locations include:

- the Queen Street, Dundas Street, Gerrard Street and Riverdale Park bridges;

- at-grade crossings at Rosedale Valley Road and River Street intersections with the Bayview Extension.

Other crossings include the pedestrian bridge to East York proposed for the Don Valley Brickworks and a link to the valley at Ataratiri. At least one access point should include a ramp for disabled access.

It is recommended:

- that further detailed study be made of access to the river. In particular, negotiations with CN and CP Rail should be pursued with respect to realizing access to the river generally and at-grade crossings south of Riverdale Park specifically.

#### 4. Open Space

Establishing major linear connections up the Don from the Lake will require widened open space links in the channelized river between Ataratiri and Riverdale Park. Where acquisition is not possible, the redevelopment of riverside properties over time will help focus new development on the river and enhance the open space corridor.

It is recommended:

- that, as part of a Part II Plan or improvement programs, the City pursue ways of establishing open



*The Charles River, Boston*

space links in the urbanized sections of the Lower Don on both east and west sides of the river.

Similarly, the major delta open space would serve as a major focus and essential land use in its own right for an enhanced "green industry" development proposed by the Crombie Commission and the Toronto Harbour Commission's soil regeneration plant. Current industrial development in the Portlands is lower than any other area in Toronto, both in built form and employment density. New development surrounding the proposed open space could make more intensive use of the land, with low to mid-rise industrial/commercial buildings and greater employment. It would also link with the Don Roadway open space corridor, first proposed by the Toronto Harbour Commission, to provide more effective connections between the river and the lake.

It is recommended:

- that the concept of a major open space/delta/marsh as a focus for future industrial/commercial development be adopted as a long-term objective and that planning/urban design studies be initiated to examine ways of achieving this concept.

#### 5. Land Uses

Transportation and utility functions in the valley are clearly in conflict with the objectives of the Lower Don strategy plan. However, reality requires that these will remain for the foreseeable future. The reduction of impact from these facilities by berming and planting and possibly by sound walls in particular places, are possible strategies for improvement.

It is recommended:

- that detailed study be made to reduce the impact of these land uses in the short term, as well as a study of building height, densities and open space plans; and that investigation of long-term solutions be initiated with the jurisdictions concerned.

#### 6. Soil Contamination

The soils, groundwater and sediments of the Portlands are contaminated from previous industrial use and are well described in the report *Pathways*, by the Royal Commission on the Future of the Toronto Waterfront. They will need to be remediated prior to the creation of the Delta/Marsh and industrial/commer-

cial developments. Similarly, the soils associated with the railway may be contaminated. Testing and appropriate decontamination strategies would be required for these locations, as has been proposed by the Toronto Harbour Commission.



Portlands

It is recommended:

- that the City collaborate with the various government agencies concerned, including the THC, MOE, MNR and MTRCA, concerned and the private sector to investigate appropriate solutions to contamination in the Portlands area.

## 7. Reforestation

Reforestation and revegetation of the valley will be an ongoing activity for many years and is one of the most important and easily implemented components of restoration. Restoration of valley walls and floodplain should be based on an ecological approach to planting (managed succession). The intent is to introduce diverse, uneven-aged, native plant associations that are in harmony with the different environmental conditions of the valley. Planting is proposed according to these priorities:

- short-term planting potential (no existing vegetation, easy access, high visibility sites);
- medium-term planting potential (low complexity, regenerating sites with fair visibility, access, etc.);
- long-term planting potential (low to medium complexity open spaces, difficult access, steep slopes, etc.).

The continuing involvement of local and school groups are appropriate for priorities 1 and 2. Programs should focus on projects that are small and realizable within one day's work. Other more demanding reforestation on a larger scale should be undertaken by professional contractors and possibly by corporate initiatives.

It is recommended:

- that the City continue to support reforestation projects in the Lower Don on a yearly basis through community group and private sector efforts and by professional contracting;
- that the creation of a forested open space connection to the Leslie Street Spit is a short-term priority project.

## 8. Part II Plan

A Part II plan for the Lower Don will establish a long-needed identity and value for the valley as a distinct place in the City. It should have its own planning area and Part II Official Plan consolidating all City of Toronto policies for the valley.

Toronto City Council should require that valley edges be subject to site plan review under Section 40 of *The Planning Act, 1983*, to ensure that the massing and landscaping of future development proposals is consistent with the civic design guidelines of this plan and those evolving from further study.

Examination of future open space links along the east and west sides of the channelized river should be incorporated into the plan.

The City of Toronto's ravine policies could be extended and reviewed to include the edges of the Don Valley not in public ownership. Publicly owned valley lands should be zoned "G" and the new environmentally sensitive area policies proposed for the *Cityplan '91 Proposals Report* should be examined for their suitability to the Don Valley.

The City should also investigate the use of improvements programs as defined by *The Planning Act, 1983*.

Also, Metropolitan Toronto should designate the entire Don River Valley as a major River Valley on Figure 11 of the Metro Official Plan.



It is recommended:

- that a Part II Plan be initiated as a priority by Toronto City Council;
- that the Borough of East York, the City of North York and the Town of Markham be encouraged to prepare secondary plans for their sections of the valley.

## 9. Land Ownership

The fractured land ownership pattern throughout the valley will inhibit attempts to restore natural systems and provide public access. Resolution of the issue will be of central concern for the realization of the Lower Don strategies. Consideration should be given to the creation of Partnership Agreements between community organizations and various levels of government and agencies that have jurisdictional and ownership interest in the valley. An example is the Toronto Harbour Commission's initiative in establishing partnership relations with the City and the Task Force.

It is recommended:

- that the City and the Task Force to Bring Back the Don on behalf of the City, initiate discussions with local municipalities, Metro and provincial agencies to create the appropriate form of Partnership Agreement necessary to implementing the Don River restoration strategies.

## 10. Phasing Strategy

A realistic time frame for implementing restoration projects is dependent on numerous factors that cannot be resolved in this study. The proposed phasing, therefore, makes the following assumptions:

- the time requirements for the City approval process will be at least one year;
- the political will to implement these proposals will minimize major impediments to implementation;
- phasing will set priorities, beginning with projects that can be implemented:
  - with a minimum amount of preliminary study (i.e., potentially time-consuming environmental assessments);
  - at a reasonable cost;
  - that are community-based;

- are single agency-based (i.e., reforestation projects, wetland creation, tributary stream restoration, Part II Plan, etc.);

- phasing will continue with projects involving more complex study and negotiations, i.e., weir at Rosedale Valley Road, flushing channel, delta;
- completion of the combined sewer overflow program to enhance water quality in the Lower Don will depend on a variety of options the City will review and the need for an environmental assessment. It will also depend on the existence of treatment capability, provincial combined sewer overflow (CSO) policies, Metro policies and funding.

It is recommended:

- that a detailed program for implementing restoration projects be developed as a part of the more detailed studies already proposed.

## 11. Capital Costs

Capital costs for the Lower Don Open Space Strategy have been estimated on the basis of:

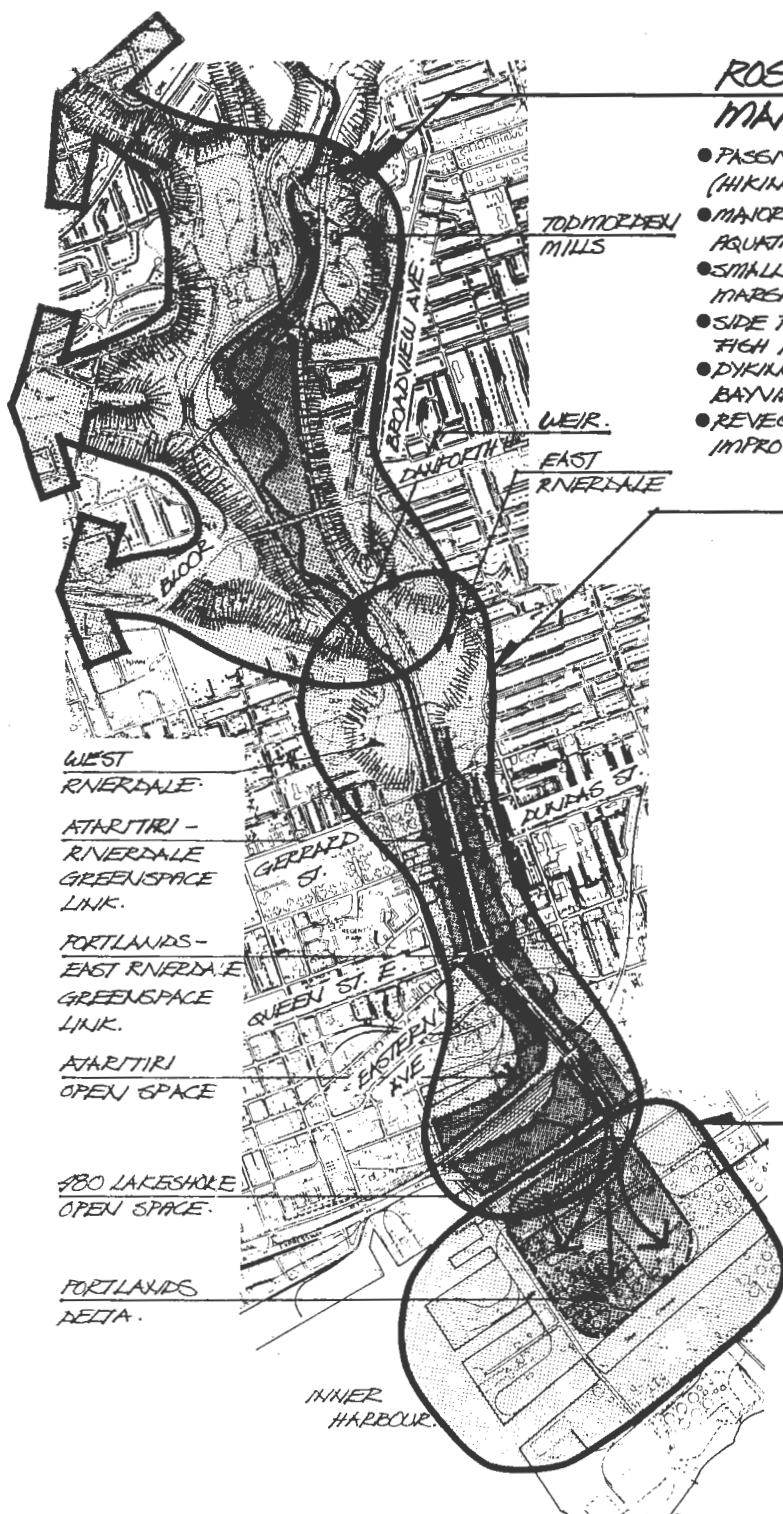
### 1. Water Quality and Habitat

Open space improvements that would directly benefit water quality and habitat creation. These include the weir, dyking and berms, side ponds and marshes, reforestation and settling ponds for all three landscape units.

Total costs are estimated at between \$49 million and \$68 million.

The ongoing Sewer System Master Plan project by the City of Toronto is intended to finalize a remedial program for the virtual elimination of Combined Sewer Overflows (CSO). When these costs are known, it may be possible to add these costs to the Lower Don Open Space Strategy.

If the average cost of these improvements were added to the City's sewer separation program cost for the Lower Don sewershed only (assumed to be approximately \$160 million), then the total combined cost for enhanced water quality is estimated to be \$58 million + \$160 million, or \$218 million.



## ROSEDALE MARSHES.

- PASSIVE RECREATIONAL ACTIVITIES. (HIKING, BOARDWALKS, INTERPRET.)
- MAJOR NEW FLOODPLAIN/ AQUATIC HABITAT
- SMALL STONE WEIR TO CREATE MARSH HEADPOND.
- SIDE PONDS DREDGED TO CREATE HIGH LITTORAL EDGE HABITAT.
- DYKING TO PROTECT RAILWAY/ AND BAYVIEW AVENUE FROM FLOODING.
- REVEGETATION AND HABITAT IMPROVEMENT OF SIDE RAVINES.

## RIVER CHANNEL.

- LINEAR MASSSED AND FORMALIZED PLANTINGS.
- NEW, SEPARATED PATHWAY SYSTEM.
- RE-CONFIGURATION OF FENCES AND R.O.W.'S
- PASSIVE RECREATION AND INTERPRETIVE NODES.
- STAIRS DOWN FROM BRIDGES.
- MAJOR NEW GREEN SPACE. LINK BETWEEN ATARI TIRI. AND WEST RIVERDALE, WEST OF BAYVIEW EXTENSION.
- TILTED FLUSHING CHANNEL WITH POOL/RIFLE SYSTEM
- FUTURE REDEVELOPMENT. TO ADDRESS THE RIVER.

## PORTLANDS DELTA.

- PASSIVE RECREATIONAL/ EDUCATIONAL OPEN SPACE.
- BIO-PHYSICAL LINK; RIVER-LAKE.
- BIOLOGICAL RESEARCH.
- NEW DELTA AND WETLANDS HABITAT.
- PERIPHERAL HIGHER DENSITY, MIXED COMMERCIAL AND INDUSTRIAL 'GREEN INDUSTRIES'

FIG. 1 - LOWER DON STRATEGY PLAN.

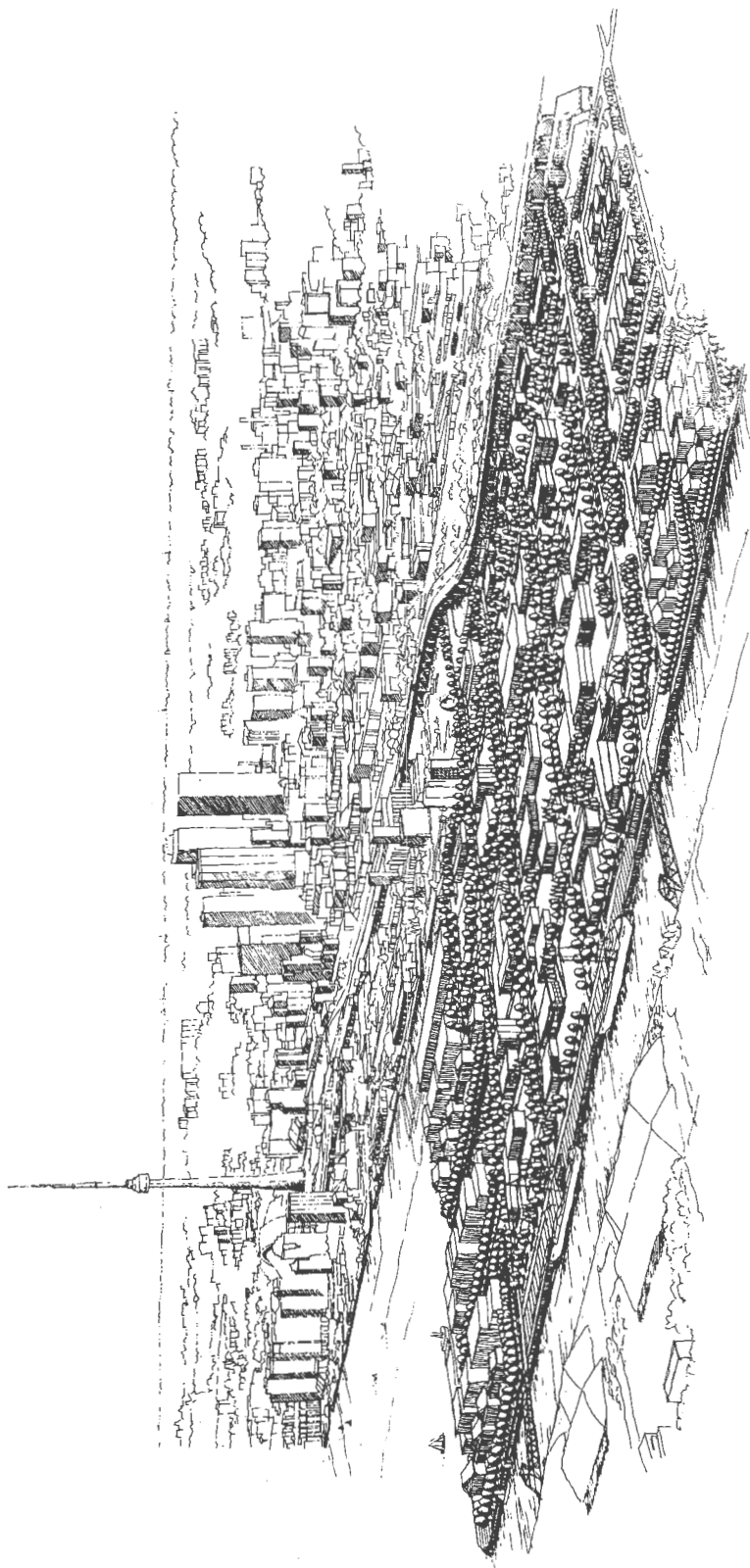


FIG. 2 - PORTLAND  
CONVENTIONAL DEVELOPMENT



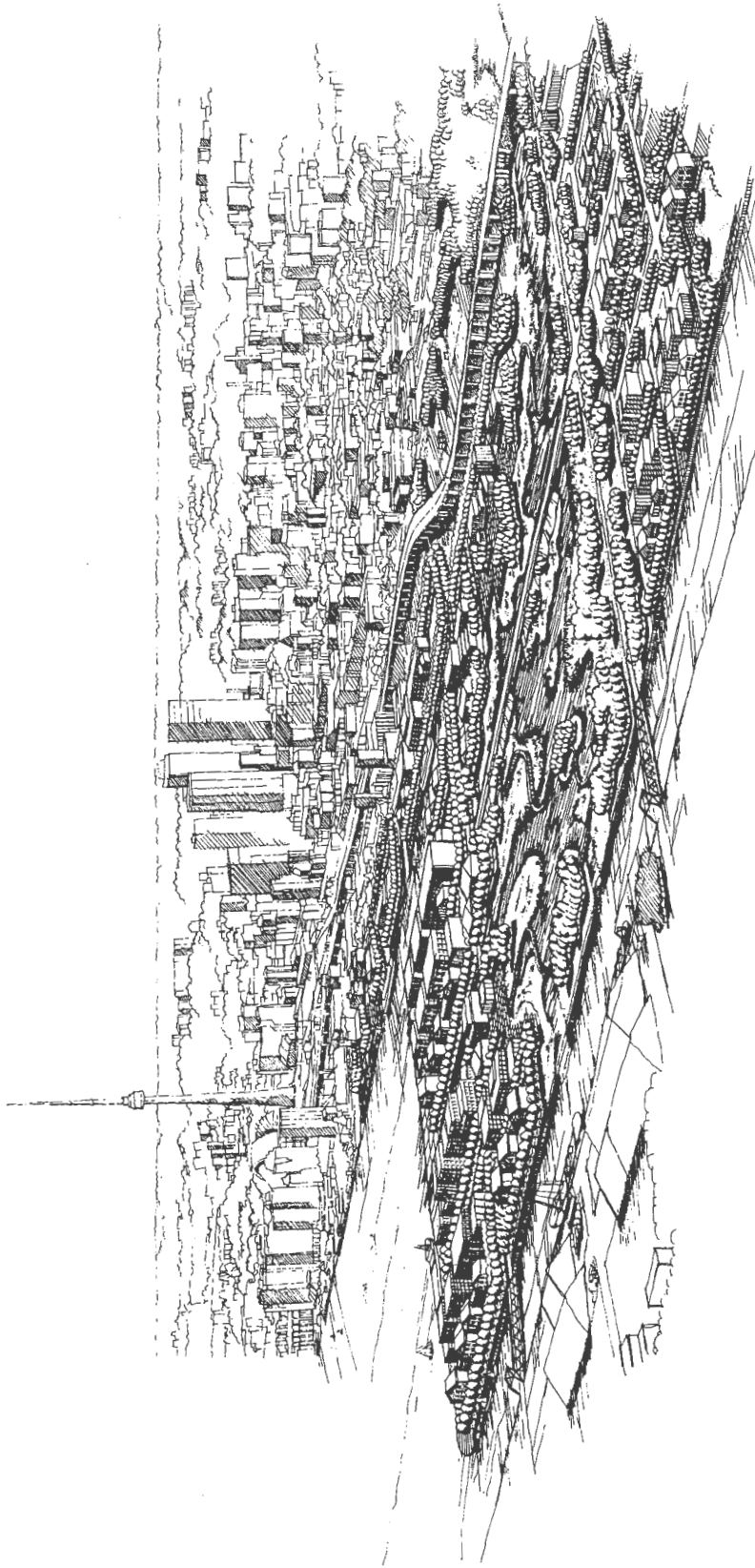


FIG. 3 - DELTA / MARCH OPEN SPACE  
ALTERNATIVE



Therefore, the open space costs would amount to approximately 26.5 percent of the total water improvement program, a proportion well below the benefits in water quality gained from settling pond and aquatic habitat treatment of stormwater.

## 2. Recreation and Access

Open space improvements that benefit recreation, access and research. These include access to the valley (bridges, stairs, etc.), recreation facilities and research facilities for all landscape units.

Total costs are estimated between \$14 million and \$19.5 million.

**Total open space cost ranges 1 and 2 are \$63 million – \$87.5 million.**

For comparative purposes, the total capital cost to implement the *Don Valley Brickworks Master Plan* was estimated at \$30 million.

It is recommended:

- that the City should commit itself to a joint funding approach with respect to detailed studies and capital projects within the context of a partnership agreement between local and senior levels of government.

## 12. Other Recommendations

- As a first priority, preliminary hydrological flood modelling analysis should be undertaken in the fall of 1991 to assess the Task Force's proposal in relation to the forthcoming MTRCA Flood Management Policies that will affect Ataratiri and other City objectives in the area.
- Consideration should also be given to developing a physically-scaled model as a means of examining the hydrological issues of the concept.
- The pros and cons of filling the Keating Channel should be studied from hydrological, economic and urban design points of view.
- An urban landscape study should be made of Bayview Avenue with a view to enhancing the road as a scenic route, including an improved pedestrian cycling route.
- River valley restoration works should be preceded by archaeological investigation.

## Further Study

The implementation and approvals process required to achieve the Task Force's objectives will involve many steps over a number of years. There will be a need for detailed hydrology, engineering and biological studies, to test and confirm the technical validity of these conceptual proposals. In addition, numerous others will address environmental, social, economic and industrial impacts and decommissioning requirements.

Specifically, further study will involve the following.

1. *Preliminary Hydrological Flood Modelling analysis to determine the compatibility between the Task Force's proposals and other uses in the Lower Don*

This relates specifically to the floodproofing requirements of the Ataratiri project and the Special Policy Area floodplain management work currently being undertaken by MTRCA. Since the modelling techniques are already in place (Dynamic Hydrological Model DHM, by Marshall Macklin Monaghan), they should be employed to validate the concept at the earliest possible time.

## 2. Other Hydrological Studies

- a) Hydraulic analysis and modelling of concepts to evaluate options for works required and the hydraulics of the new Lower Don with a flushing channel reach in place.
- b) Further study of the Rosedale weir and dykes to determine their precise height and design with respect to sedimentation and flooding patterns.
- c) On-going review of design and operation of the settling basin (delta/marsh) to ensure that sediments are confined to the allocated space and to recreate historic marshland flows. Such review will be ongoing and will depend on flood flows, upstream changes in the basin and on the plan that evolves for the marsh.
- d) Qualitative assessment of options for dyke configuration and manipulation using physically scaled hydraulic models. It should be noted that real configuration of the delta/marsh will require real-time manipulation of alternative outlets and channels within the basin.



### 3. *Development of a Part II Plan for the Lower Don*

This will address Urban Design Guidelines, appropriate uses of the valley (Part 2, Objective 4), protection of the City's industrial base in relation to the Task Force's vision for the Portlands Delta/Marsh, transit plans, future open space links along the banks of the urbanized river channel and the provision of essential infrastructure in the valley.

### 4. *Partnership Agreements*

Development of coordinated implementation and management strategies are needed through the formation of partnerships between all community, municipal, provincial and federal agencies having jurisdiction in:

- the Lower Don valley;
- the entire watershed.

MTRCA has already initiated approaches to the development of partnership agreements that will lead to overall planning strategies for the entire Don River watershed. Within this framework, many community projects will be initiated and developed further including such projects as:

- potential restoration of tributary streams;
- reforestation projects;
- small wetland projects;
- reduction of storm water runoff to the river by infiltration into the soil within the various river valley sewersheds.

### 5. *Other Detailed Studies*

These involve hydrological, engineering and biological studies to confirm and develop in further detail, the various aspects of the vision

### 6. *Environmental Health Evaluation and Analysis*

Detailed study of soil, groundwater and river sediments will need to be undertaken, along with excavation, clean-up and disposal of dredgeate materials, decommissioning procedures and guidelines in accordance with MOE requirements

along the river and Portlands area. In addition, the uptake and retention of contaminants in aquatic vegetation as a means of improving water quality will need to be studied with a view to establishing appropriate wetland design and management procedures (see Royal Commission on the Future of the Toronto Waterfront's *Pathways*).

### 7. *Keating Channel*

The pros and cons of filling the Keating Channel should be addressed from several points of view, including those of hydrology, economics and urban design.

### 8. *Corporate Involvement*

Corporate involvement will be critical to the long-term success of the vision. Discussions and collaboration on a variety of projects between the City, the Task Force and present and future industry in the Lower Don and Portlands will be particularly relevant and should be initiated at an early stage of the future work.

### 9. *Bayview Avenue*

Urban landscape study should be made of Bayview Avenue with a view to enhancing the road as a scenic route. Sensitive understanding of its location in the valley will be essential, particularly with respect to reforestation, lighting, views, pedestrian and cycle routes and its special civic role in the city.

### 10. *Inappropriate Land Uses*

In the short-term, ways of reducing the biological, water quality and sensory impacts of current land uses in the valley should be studied, in cooperation with Metro Transportation. They include land uses such as the Don Valley Expressway, maintenance yards south of Pottery Road, hydro towers and electrical substations, hydro storage areas and ways of reducing the aural and visual impacts of the Don Valley Expressway by screening, sound walls, etc. Consideration should also be given to ultimate long-term solutions to the location of such facilities, within the limits of practicality.

### 11. *Design Studies*

- a) Design of access to valley (stairs from bridge structures, at-grade access in consultation with railway companies and the City).
- b) Phased design/planning of landscape and site planning work including recreation facilities, pathways, bridges, seating areas, planting, interpretive programs, etc.
- c) Study of safety issues in relation to proposals for access and the objectives for valley restoration.
- d) Study of revegetation of areas having difficult access, in particular revegetation of the Don

Valley Expressway (in conjunction with Metro Transportation).

- e) Study of potential for public art in the Lower Don, in particular within the River Channel landscape unit.

### 12. *River Maintenance Costs*

Ongoing maintenance of the proposed flood plain and delta areas will require study to determine the requirements of on-site dredging work and associated costs.





# Section 1 – History, Context and Issues

## 1 Background

### 1.1 The Task Force to Bring Back the Don

The restoration of the Don River and its valley is an act of faith by the citizens of Toronto that grew out of the concerns of many people for the natural heritage of their City. The Task Force to Bring Back The Don was initiated in 1989. It began as an informal organization of citizens and interest groups that represent various public and private constituencies with interests in the Don. It was formalized in December 1990 by Toronto City Council. The mandate of the Task Force is to undertake initiatives that will contribute to the ultimate restoration of the entire watershed by focusing on rehabilitation efforts within the jurisdiction of the City of Toronto. The Task Force is committed to promoting clean water, restoring open space and improving public access to the valley. It is also committed to the education and encouragement of community involvement in its decision-making process and to cooperation with Civic Departments, other levels of government and government special purpose bodies. While these initiatives will take many years to accomplish, the Task Force's goal is to see practical results in the Lower Don by the year 2001 and a continuation of restoration measures beyond that date over the next fifty or more years. This study is dedicated to establishing the outcome of an overall vision for the future health of the valley. It also shows what can be done over the next few years in practical demonstration projects, to which local communities with a direct sense of investment in the river's health can actively contribute.

### 1.2 Fundamental Philosophy and Goals

Where does one begin this task? What is the central vision for restoring the Lower Don, whose essential natural values have been ignored and despoiled for over two hundred years; its once pristine waters now all but lifeless; its valley ransacked by an expressway, a four-lane road, railway tracks, transmission towers and salt dumps; its vegetation and wildlife degraded; its sense of wholeness, beauty and special sense of place shattered? There are other questions that must be asked that have to do with defining the scope and direction for the valley's restoration. Should its primary focus be on recreation or nature? Should it lean more towards providing a wider range of recreational



Baldwin Room

*The Artist's Choice, on the Don River (post card, circa 1905)*

opportunities, or towards the ecological restoration of the valley's integrity as habitat? Such questions are by no means didactic hair-splitting but provide the very basis for a coherent direction for restoration strategies.

As the Task Force discussed this question in many long meetings, it became clear that its philosophical position leaned to the latter view – towards the restoration of the valley as a functioning, ecologically healthy place. Thus, this study has two primary goals:

1. to re-establish ecological diversity in the valley in ways that integrate history and human/non-human values. All other existing or future land uses that detract or impoverish its ecological integrity may be viewed as impediments to its restoration. To the extent possible, then, this has become the underlying philosophy;
2. to develop open space and recreational strategies that are in tune with the essential nature and functions of a river valley.

*Boys fishing in the Don*



City of Toronto Archives

These goals emphasize a profound environmental bias with priorities that focus on nature rather than on recreation. This study does not, therefore, propose a series of strategic or basic options for restoring the Lower Don. Rather, it proposes a vision of what the place could be like, within which there are alternative ways to achieve the vision. A note on the meaning and implications of the restoration process is important here.

### 1.3 Defining Restoration

The restoration of habitat in the valley rests on the interrelationships between the modification of the river's hydrology, the creation of aquatic plant communities to further enhance water quality and appropriate environments for fish and terrestrial animals. To do so involves an understanding of the valley as a whole and the interconnectedness of its parts as a "natural" and "human" system. Restoration also involves taking more dramatic environmental action where a "return to a natural state", in a literal sense, is not practically feasible or even desirable. For instance, before the Lower Don was channelized in 1890, the last stretch meandered slowly down to the Ashbridges Bay marshes, overtopping its banks during floods and leaving sediments and estuarine marshes within these meanders and in the floodplain. Channelization permitted urban expansion to occur on the east bank, but at the same time restricted and disrupted the river's natural flooding patterns. Today, this situation has been compounded with the construction of the railway and the Don Valley Expressway that have effectively placed the river in a strait-jacket on both sides. Thus, returning the river to a more "natural" state involves alternative approaches to its restoration that did not previously exist but which are, none the less, based on natural principles of river hydrology.

## 2 Environmental Context

### 2.1 Greater Toronto Bio-Region

#### 2.1.1 An Ecosystems View

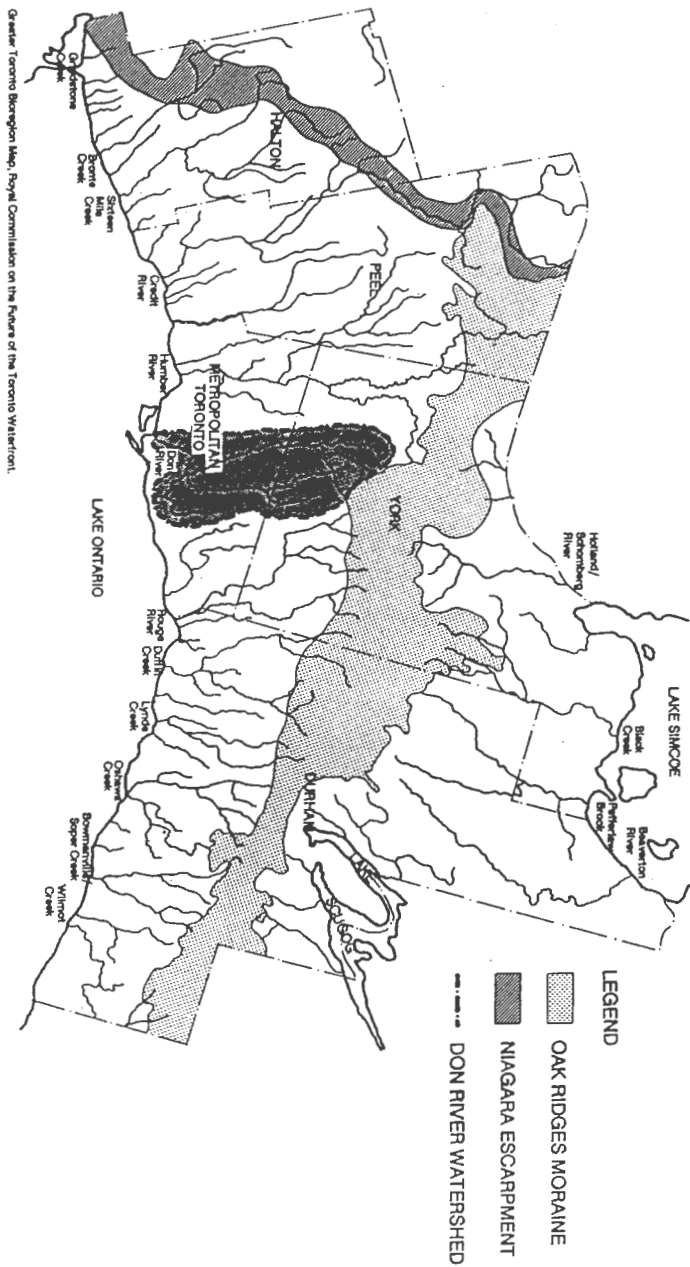
In the 1990s and beyond, new ways of thinking about river systems become essential. Policies and regulations that have been used to control development in the past will need to be rethought to reflect changing public values and the perceived rights of society to a healthy environment. It will be necessary to adopt a

more holistic ecosystems view of the bio-region that is based on recognition of natural process – the inter-dependent system of river valleys that flow from the Oak Ridges Moraine to Lake Ontario through the urbanized and urbanizing Metropolitan Toronto region. It is a view that recognizes the interrelationships between the physical and biological processes that made the rivers what they were, the human uses that have changed them and the integration of ecology, restoration and economy that will ensure their continued health. The valleys must be understood in terms of their land history, their topography and valley slopes, their hydrological balance, groundwater recharge and discharge that maintain flows within water courses, their water quality and aquatic life systems, their forests and plant communities that contribute to the infiltration and storage of water and provide natural upstream flood control, their terrestrial wildlife, human history and land use and related factors that lend integrity to the whole natural valley systems and sustain human activities (Figure 4).

There are a number of major components in ecosystem planning that should be recognized in the Don watershed:

- protecting areas that retain a high degree of ecological integrity and restoring what has been degraded;
- ensuring that all future human use of the watershed and associated developments should contribute to the overall health of its environment;
- ecosystem planning involves an assumption of environmental bias. The watershed planning agenda must be weighted towards the health of the system and the recognition of the valley as a place;
- ecosystem planning involves principles of urban biology. Urban river valleys encounter special problems where "natural" environments are juxtaposed with "urban" ones, such as issues of water quality, storm drainage, appropriate uses of the valley, the preservation of wildlife, etc.;
- ecosystem planning involves the development of partnerships between communities and various levels of government that extend beyond political boundaries and deal with the valley on a watershed basis. Thus, inter-jurisdictional cooperation is a fundamental requirement for getting things done. Little can be achieved without an integrated political agenda.

Fig. 4 - GREATER TORONTO PIPELINE MAP







In the context of the bio-region, there are interesting comparisons between the Don and the two major rivers that flank it to the west and east. Recognizing the severe water quality problems in the Humber and the threats to both the Rouge and the Humber from developments in their upper reaches, these two rivers have maintained extensive natural environments that will need to be protected, primarily through planning strategies that emphasize the management of people. The Rouge in particular is possibly the last remaining natural wilderness in the metropolitan region. The Don, on the other hand, has been extensively degraded particularly in its lower reaches and will require major intervention to return its natural habitats to a state of health.

## 2.2 Land History

The Toronto area has been covered with shallow seas, glaciers hundreds of feet thick and freshwater lakes and rivers with basins and courses larger than the present day. Different plants and animals have inhabited the area in response to varying climate and migration routes. Each stage has left its own deposits and fossils as evidence. Today, the Lower Don appears as a broad U-shaped valley with a series of tributary ravines cut in fairly level tableland. Its physiography is a result of the action of the Wisconsin glaciation, post-glacial Lake Iroquois and associated drainage patterns.

A visible record of Toronto's geological past is exposed in cross-section in the Don Valley Brickworks quarry near Pottery Road. Toronto's bedrock was laid down 450 million years ago in the Ordovician era as sediments in shallow seas. These solidified into the blue-grey shale of the Georgian Bay formation. During the ice age, the bedrock was buried beneath hundreds of feet of glacial drift composed mainly of till and varved clay. The Don River has cut its valley through this over-burden of glacial debris, but nowhere cutting down to the shale bedrock (Figure 4).

The Lower Don was all under water during the time of post-glacial Lake Iroquois. The old shoreline is still evident as a distinct bluff that rises up to 75 feet as it runs from the Scarborough Bluffs, around Lake Ontario and through Toronto, where it is familiar to people as the Yonge Street, Avenue Road and Casa Loma escarpment.

Wave action and westward shoreline currents built up a sandy "baymouth bar" where the ancient Don River

entered the temporarily impounded glacial Lake Iroquois. Sands, silts and clays were deposited behind the bar in a protected lagoon that now underlies the upper valley of the Lower Don. The sandy bar stands above contemporary Lake Ontario from the Scarborough bluffs westward to the Lower Don Valley and underlies eastern Toronto and East York. When the level of Lake Iroquois dropped to the present level on Lake Ontario, the river flowed out of the old lagoon around the western edge of the bar, forming the present lower reach of the Don. As the modern river entered Lake Ontario, the process of building a baymouth bar and backshore lagoon was repeated, forming the harbour islands spit and a protected lagoon known as Ashbridges Marsh. In the last hundred years, these early landforms have been consolidated with landfills and breakwaters to form the Toronto harbourlands (Figure 5).

## 2.3 Don River Watershed

### 2.3.1 Hydrology: River Behaviour

A true understanding of the river begins with the patterns of its stream channels and their behaviour that created the valley and its subsequent life systems in the first place. The typical patterns of a natural river are analogous to those of a tree. The above-ground structure of a tree begins with a trunk that branches into major limbs; each limb in turn branches respectively into minor limbs; and each of these branches repeatedly into thousands of smaller limbs and twigs. A river system follows this branching pattern with thousands of tiny, almost imperceptible, rivulets feeding into slightly larger rivulets, until the main tributaries feed into the final artery, or "trunk" of the river. The average rate of branching in both rivers and trees lies between three and five in this universal natural pattern.<sup>1</sup> To assess the health of a river, therefore, it is necessary to study it as a whole. Since the natural and human events that occur in the Lower Don are dependent on what happens within the watershed, our

*Ashbridge Marsh*



analysis of the valley's natural systems begins here (Figures 7 and 8).

#### The Existing Stream Pattern

The watershed of the Don River encloses a 360 sq.km. drainage basin. It extends 35 km from the hills at the north end of the City of Vaughan, to where it empties into the Toronto harbour 30 kilometres south. In its 225 metre drop from source to mouth, the Don flows through five different types of landform, or physiographic region, from its source in the gravelly soils and water-bearing aquifers of the Oak Ridges Moraine, to the Lake Iroquois plain and the present shore of Lake Ontario.

In the rural headwaters (site photos 1, 2 and 3), small streams gather water in a regular branching pattern, that in turn form larger tributary channels (site photos 4-9). Below the Forks, the gradient of the river decreases abruptly as it flows across the abandoned Lake Iroquois lagoon. Under regular flow conditions, the last 3 kilometres become sluggish, dropping only 0.4 metres to the level of Lake Ontario. The lower channel consequently fills with sediment unless it is regularly dredged.

#### Stream Channel Characteristics

The tributaries that combine to form the Lower Don have a regular pattern of channel dimensions that vary with the size of the upstream tributary drainage area. For example, at the foot of the Oak Ridges Moraine at Dufferin Road (site photo 2), this small tributary of the Don gathers water from only 3.1 square kilometres. The flow at this point creates and maintains a channel that is only 0.3 metres deep and 1.8 metres wide. In contrast, further down the valley at site 6 near Finch Avenue, the river receives water from upstream reaches that extend over an area of 98.6 square kilometres. In this reach, the flow is able to maintain a channel that is 0.7 metres deep and 10.7 metres wide. The relationship shown between the natural channel size of the upper Don River and its upstream drainage area is typical of many natural rivers in mid-continental North America and Europe.

The natural channel dimensions may be related to many other river features as well. For example, the average length of a river meander has been found to be ten to twelve times the river width. Similarly, the average spacing of riffles (rapids) on a river bed has

been found to be five to six times the river width. These general relationships may be used to gauge the present state of the Don River in altered sections, or as guidelines for the design of restoration work in buried and diverted reaches of the tributaries.

In the last four kilometres, the channel is wider and deeper than it would be naturally because it is maintained artificially with channelization works and dredging to reduce flooding in the lower valley and harbourlands. Without dredging, this reach would form a natural delta and wetland in the lower valley and inner harbour, similar to that which was being deposited before the river was diverted through the Keating Channel and the natural marshlands that were infilled (see Figure 9).

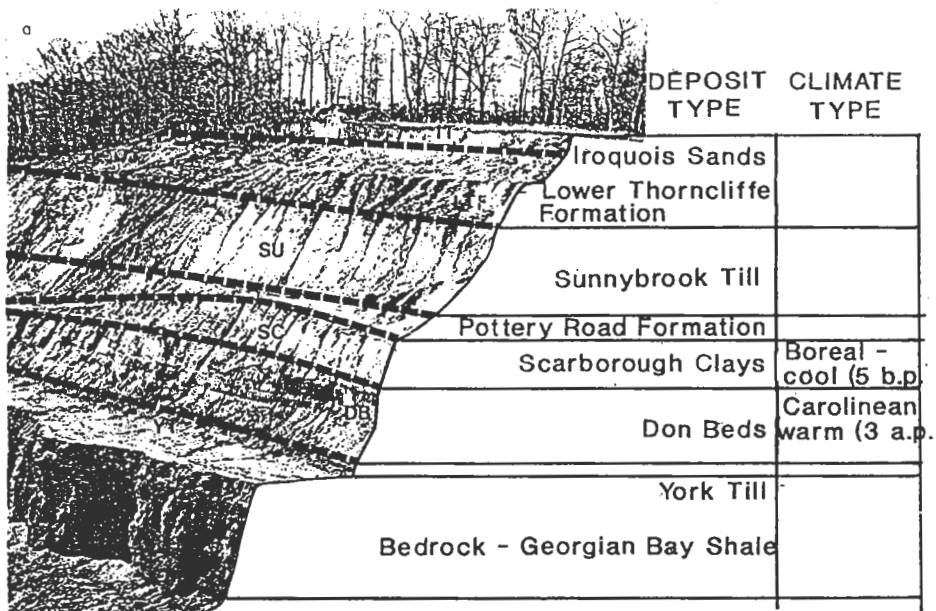
In the urbanized southern half of the basin, many of the tributary streams have been infilled and diverted into local drains and underground conduits. Thus, we find that in the Lower Don Valley below the junction of the east and west branches (site photos 10, 11 and 12), all the tributaries have been channelized or diverted underground at various periods of the City's growth, leaving only the main channel exposed. These infilled and diverted stream tributaries lack natural stream habitats, plants, or re-oxygenated water and no longer perform a useful function in the maintenance of the Lower Don's biological and aquatic life.

#### The Buried Streams of Toronto

Many of Toronto's vanished and forgotten streams belonged to the Humber and Don river watersheds, an area of approximately 3,644 hectares extending from the Kingsway in the west to St. Clair Avenue in the north and to Mount Pleasant Road in the east. With the exception of High Park, this area has been completely urbanized for about 70 years.<sup>2</sup> The streams and their valleys that could be filled were buried in the late 1800s, either to provide level ground for construction, or because they had become severely polluted. Others were simply too deep and were left alone by default. Among the larger named streams there were the following.

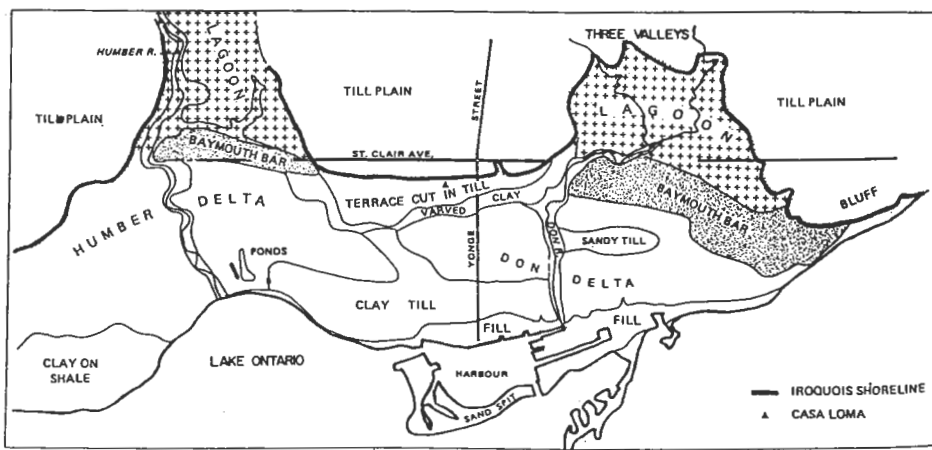
*Garrison Creek.* Named after Fort York, which was built at its mouth, this creek was the largest and farthest west of the streams. It drained an area of approximately 1,438 hectares. A portion of the Garrison Creek ravine has been incorporated into Trinity Park,





after Eyles (1989) and Eyles & Clark (1987)

FIG.5 - BRICKWORKS NORTH SLOPE GEOLOGICAL SECTION



1984 3rd. Edition L. Chapman & D. Putnam Physiography of S. Ontario O.M.N.R.

FIG.6 - TORONTO AREA PHYSIOGRAPHY

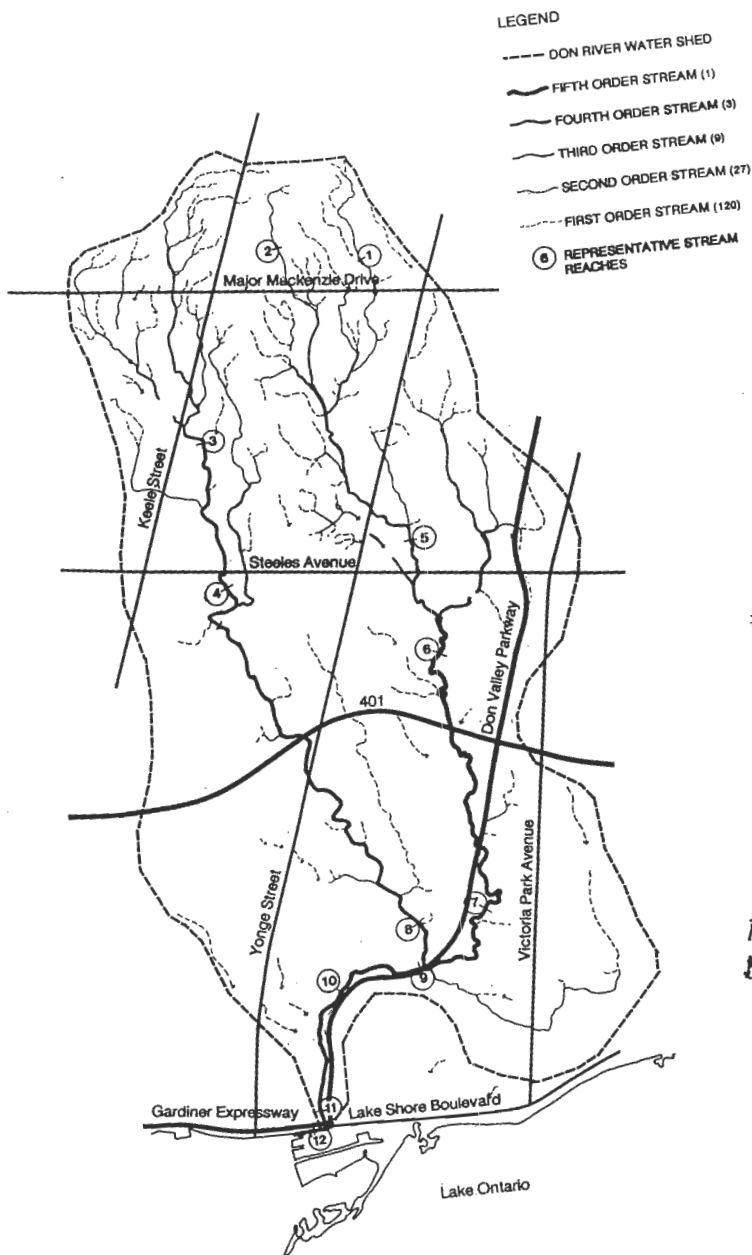


FIG. 8 - DON RIVER WATERSHED



FIG. 7  
BRANCHING PATTERN



FIG. 9. HISTORIC RIVER / MARSH





*Representative stream reaches from head waters to Keating Channel*



*1. Elgin Mills at Bathurst*



*2. Dufferin at Elgin Mills*



*3. Langstaff at Keele*



*4. Dufferin at Steeles*



*5. Bayview at Gamier*



*6. Leslie at Finch*



*7. Eglinton at Don Valley*



*8. Overlea at Don Mills Road*



*9. The Forks*



*10. Brickworks*



*11. Gardiner Sweep*



*12. Keating Channel*

between Queen and Dundas Streets. The former Christie Street gravel pits (Christie and Bloor Streets) are today a playground and are also on the creek streambed.

***Russell Creek.*** This was the next stream of any consequence east of Garrison Creek and was named after Governor Simcoe's secretary, Peter Russell, who owned a farm in the upper watershed. Russell Creek drained an area of some 244 hectares and its mouth was just west of University Avenue.

***Taddle Creek.*** This creek drained most of the 675 hectares of land between Russell Creek and the Don River watershed and was probably fourth-order at its mouth, near the foot of Parliament Street. The original site of York was laid out by Simcoe in the "hook" of the Taddle near the waterfront in 1792. Traces of the main Taddle ravine are still visible at Philosopher's Walk behind the Royal Ontario Museum in the University of Toronto grounds<sup>3</sup> (Figure 10).

### 2.3.2 River Flooding and Urban Hydrology

Flooding in the Don River watershed has been a concern since settlement began in the late 18th century; between 1804 and 1970, nineteen major floods were recorded.<sup>4</sup> Charles Sauriol writes "...by far the worst Don flood was that of September 14, 1878. It was referred to as 'the great rainstorm'; a tribute to a rainfall of diluvial proportions. All five bridges on the Don were swept away: the Taylor bridge crashed into the Gerrard Street bridge. In the wake of the floating bridge, came furniture, trees, remnants of barns, chicken coops, framework of saw mills. At King and Queen Streets the scene was one of desolation. Water reached several hundreds of feet beyond each bank of the Don. Finally the bridge at Queen Street gave way and went careening down towards the bay. This flood destroyed most of the old mills on the Don. There have been other floods: 'In the spring — during the so-called freshets, the Don became a swirling tide reaching across the whole vale, carrying wrecks of fences, sheds, carcasses of sheep and other farm stock.' In our time most everyone has seen blocks of ice lying along the railway tracks skirting the banks of the Lower Don."<sup>5</sup> However, development over the past 30 years has altered the runoff characteristics of the watershed. This has resulted in higher peak flows after periods of rainfall or snowmelt than would have occurred under natural conditions.



*Flooding of the Lower Don (circa 1920s)*

Economic activity within the floodplain prior to 1846 was associated with sawmills and grist mills. Floods were generally linked to late winter or early spring events and they did considerable damage to dams and mill buildings. By 1885, milling had declined and by 1950 the damage from floods had been greatly reduced, due mainly to the removal of mill dams, low bridges and similar structures in the floodplain. Post-war urbanization of the Don river watershed, however, has produced a steady increase in the magnitude of flood peaks due to the increasing proportion of impervious paved surfaces, storm drains and so-called "improvements" to tributary storm drainage systems. The natural infiltration into the ground that occurs in undeveloped wooded or farm land is channelled into catchbasins and storm drains. In times of flood, this increases the speed and volume of water flowing into the river and its tributaries. Consequently, the river suffers from flood peaks and lows under dry weather conditions, which also affects water quality and the presence of aquatic life.

Hurricane Hazel in 1954 caused extensive damage in Metro Toronto and initiated flood control and conservation programs for all the watershed in the Metro area. In the West Don, the Ross Lord Dam was constructed in 1973 to provide flood protection downstream. Since that time, however, the Metropolitan Toronto and Region Conservation Authority has shifted the emphasis of its flood control program toward site-specific remedial works, management of stormwater at the source and the regulation of land use in floodplain areas. Because of the relatively low benefits and high costs, the Authority has concluded that further reservoirs do not provide economic solutions to flooding in the Lower Don (Figure 11).

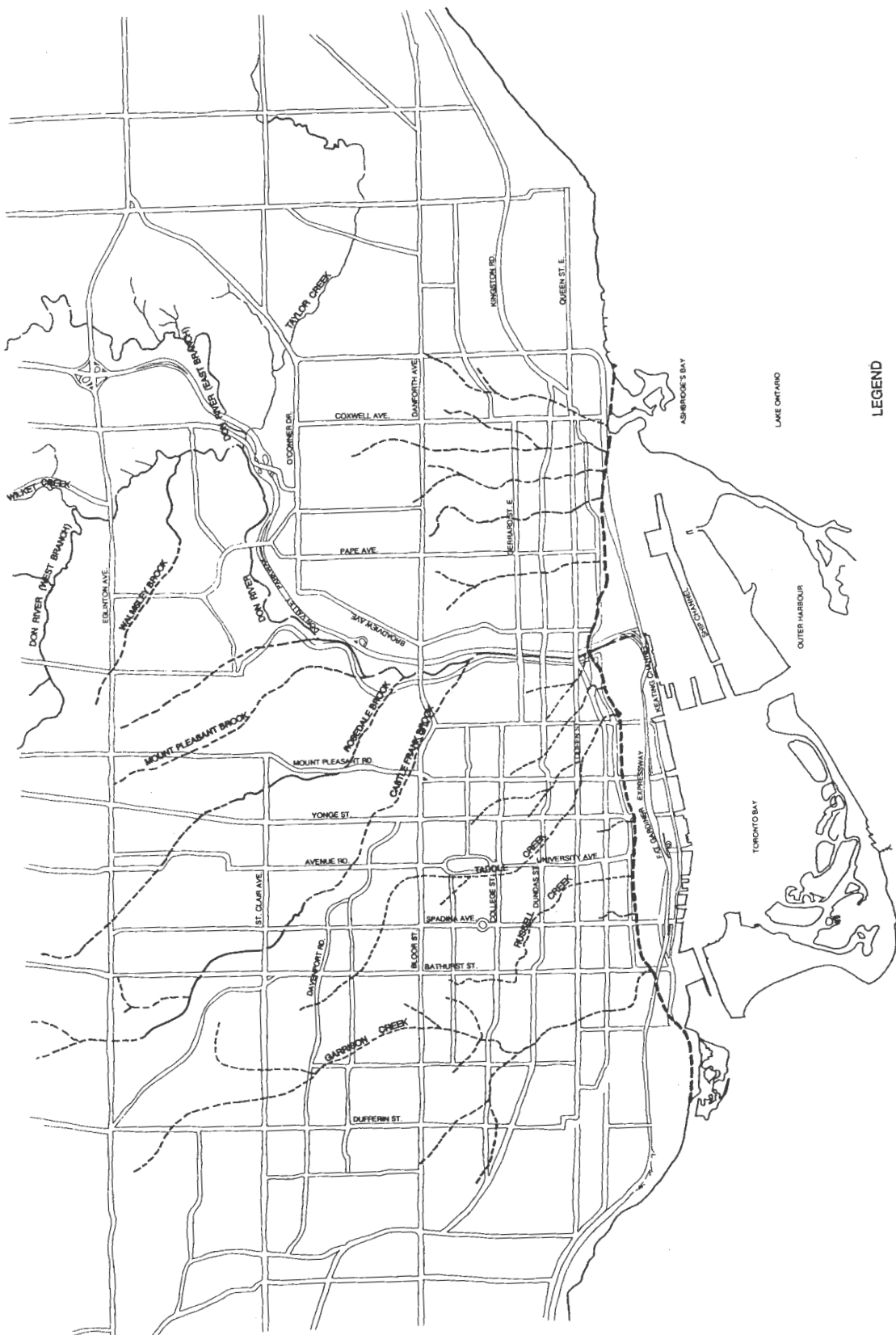


FIG. 10 - THE BURIED STREAMS OF TORONTO



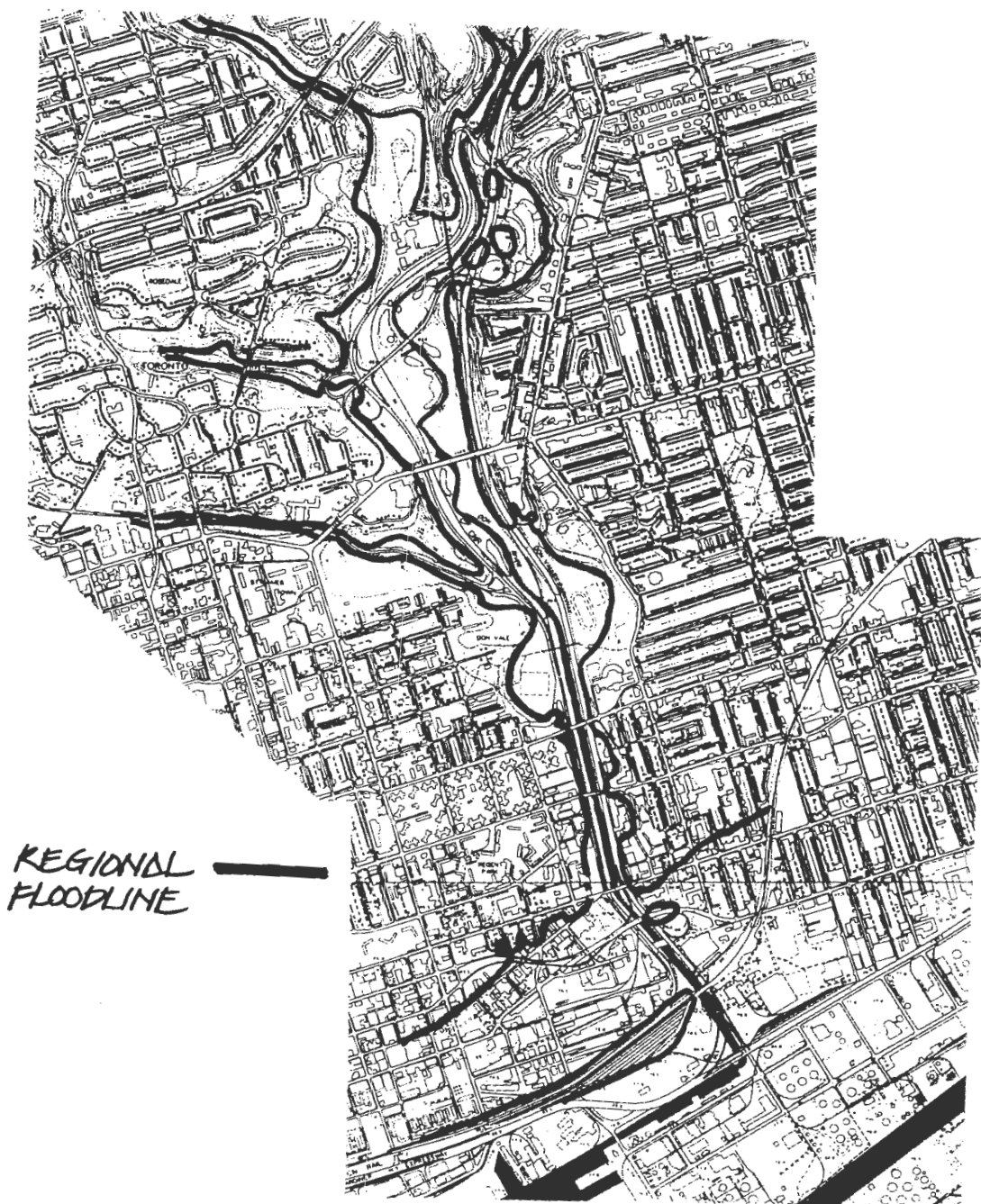


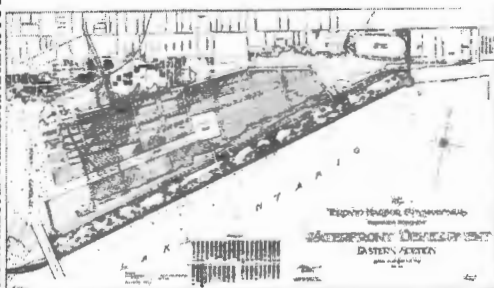
FIG. 11 - REGIONAL FLOODLINE

### 2.3.3 Sediments and Flooding in the Lower Don and Keating Channel

#### The History of the Don Delta

Before the Toronto harbour was developed as a port, the Don River deposited a delta between the mainland and the sand spit formed by the littoral drift of eroded materials from the Scarborough bluffs. The western edge of the delta was smoothly maintained by winds and waves in the inner harbour. In 1795, the delta area and Ashbridges Marsh contained over six square kilometres of levees, channels and ponds.<sup>6</sup>

Toronto Harbour Commission Archives PC 15/3/718



*THC Toronto Waterfront Plan 1912*

There were two main channels through the delta on the western edge of the marsh to the inner harbour. The main channel – the “long sweep of the Don” – exited from the centre of the marsh. A shorter, high-water channel turned westward at the foot of the Don Valley without entering the marsh. This was excavated as an inner jetty and later became the Keating Channel diversion and sole outlet of the Don. After the diversion, over six square kilometres of the marsh were infilled (see Figure 12).<sup>7</sup>

Toronto Harbour Commission Archives PC 1/1/315



*Ashbridges Marsh reclamation (circa 1914)*

The removal of vegetation and residential construction within the watershed have increased soil erosion and sedimentation beyond the limits imposed by natural conditions. Further growth of the delta would hap-

pen today, but it is prevented by dredging the annual deposit of Don River sediments from the Keating Channel (Figures 13 to 15). These are currently barged to the outer harbour landfill site. Figure 13 shows the volume of sediment between 1940 and 1980. It indicates that volumes of over 150,000 cubic metres per year peaked in the early 1960s.<sup>8</sup> In the last five years, the dredged volume has ranged between 60,000 and 120,000 cubic metres per year.<sup>9</sup>



*Pile driver at work, Keating Channel (circa 1914)*

#### Floodplain Management Policies

Work currently being carried out by Metropolitan Toronto and Region Conservation Authority is intended to establish Floodplain Management Policies in the Lower Don. Among the background studies being conducted are:

- interim floodplain planning procedures that will permit limited development and redevelopment until such time as a flood control strategy is finalized and a special policy free designation is determined;
- *Flood Protection Options* is one of six background studies that form a draft Environmental Evaluation Study Report (EES) for the Ataritari project. It recommends principles for flood protection that will provide the basis for further discussion with the City of Toronto, Metropolitan Toronto and other affected agencies.

#### Delta Building Processes Without Harbour Dredging

If dredging were discontinued, the Keating Channel would eventually fill with sediments, possibly in three years. This is based on an average rate of dredging of 100,000 cu.m./year computed over the last five years. Infilling of the channel would result in increased flooding of low-lying roads and facilities. Recent engineering studies by Marshall Macklin, Monaghan Ltd. have recommended solutions to flooding that consist

Toronto Harbour Commission Archives PC 1/1/335

of a combination of activities that include continued dredging of the Keating Channel, widening of the opening under the CNR tracks that cross the Don, raising the existing ground level of the Ataratiri site on its Don River boundary to protect the site from a regional storm (like Hurricane Hazel), removal of and/or improvements of existing bridges and possibly an overland spill control channel between the Keating Channel and the ship channel.

### 3 Historical Background

#### 3.1 How The River Was Perceived

Anyone walking through the Lower Don today would be hard pressed to recognize it as a natural valley. But to know what to do, we must understand its past – what it was and how its present plight came about. We have to peel back the rubber mask of today's man-made landscape – the structural changes that have been imposed over its original natural form – to reveal the underlying processes and patterns of the original landscape.

For centuries, the post-glacial river valley collected water from a vast watershed and entered Lake Ontario by way of the marshes which covered the present Port Industrial district. Mapped in 1688, the Don formed part of a trade route from the St. Lawrence River to the Holland River. When Governor Simcoe arrived at the site of the future City of Toronto, the Don was a fresh, clear, meandering stream, teeming with salmon and many other fresh-water fish as Lady Simcoe so faithfully revealed in her diaries.

The valley was covered with mixed deciduous and coniferous forests and provided habitat for wolves, deer, wolverine, lynx and bear. It was the route for large flights of migratory birds and huge coveys of waterfowl that nested in the estuaries' marshes at the mouth of the river.<sup>10</sup>

*"Wed. 7th — "Near the river we saw the track of wolves and the head and hoofs of a deer. The workmen, who reside in a small hut near the place, heard the wolves during the night and in the morning saw the remains of the deer."<sup>11</sup>*

While Lady Simcoe makes reference to an Indian presence, the Lower Don watershed today contains relatively few known examples of large scale pre-

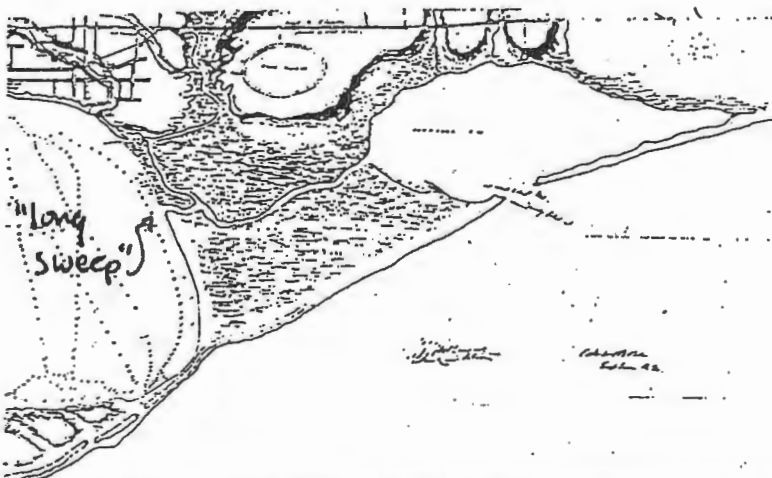
European sites compared to the Rouge and Humber rivers. The earliest Indian presence would have occurred in the post-Lake Iroquois period, perhaps 10,500 year ago, with the introduction of the new, lower Lake Ontario. Early Indian encampments tended to be small and water-oriented and few were located in the Don system. Scarp formations among the Toronto Islands, extending from the Humber to the Scarborough Bluffs, tended to deflect Indian movement past the mouth of the Don River.

Isolated seasonal encampments of small family groups and evidence of temporary activities (pottery kilns, hunting and food gathering) are more typical along the lower and middle Don valley systems. Alexandre Aiken noted in the 1780s that Mississauga Indians were encamped along the west bank of the Don on a grassy knoll. Other early European accounts of Indian presence include Percy Robinson's description in *History of York* of a burial mound in the present-day Gooderham & Worts industrial area. As with so many early accounts of archaeological sites, development has destroyed much remaining evidence.

The most significant archaeological site in the study area was discovered in 1886 during road building activities near Broadview Avenue adjacent to East Riverdale Park. As with many archaeological sites, it was located in a strategic vantage point with good access to major trail routes. Known as the Withrow site, it was a multi-component site, containing human remains and other artifacts buried deep beneath the Hurricane Hazel silt layer. There is evidence that the site contained both Archaic (pre-3000 BC) and newer culture artifacts. Several recent archaeological digs near small Don tributaries in North York indicate the potential for further finds in the lower and middle Don system.<sup>12</sup>

But the people who settled the region came here to survive and to prosper, not for its wild scenery, even though it was appreciated by some. During the early 19th century, the forests of the Lower Don were cleared for numerous farms and grist mills that were powered by the river. Much of the bottom-land was used for pasture and orchards, supplying, for example, all food for the Don Prison.<sup>13</sup> As the City grew in the mid to late 1800s, a number of perceptions of the Don influenced its role in the City.





A sketch of Toronto showing the Harbour and relative positions of its present and proposed defenses in 1846 by Holloway and Boxer, is roughly drawn but purports to show conditions within the marsh. "Ashbridge Bay" is named for the first time. A note at the lake entrance reads "cut about 6 feet deep occasionally filled up." The Don has two outlets, that in the northeast corner of the harbour being shown for the first time although it was said to have been opened for tactical purposes during the war of 1812.

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- 120 A copy of part of the Toronto Harbour Commissioners plan of 1912 based on its recent survey not only gives soundings throughout the area but differentiates between water and marsh. Cottage settlements on the peninsula and the sand spit are shown as are early industrial enterprises in the vicinity. The north outlet of the Don has been closed and the river diverted south to the line of Keating's channel. Work on the channel has straightened the irregular edge of the mainland and landfilling has already consolidated the marsh to the north and west of the river/channel intersection. Coatsworth Cut into Ashbridge's Bay, and the Eastern Channel into Toronto Harbour have both been regularized with stone jettys.

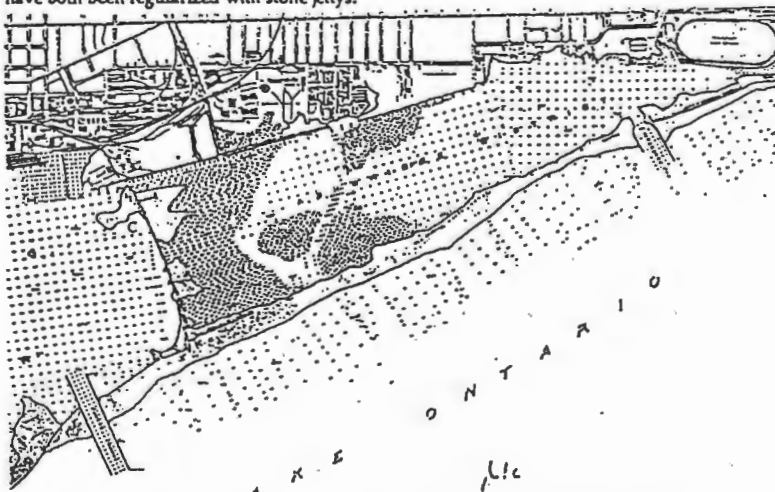
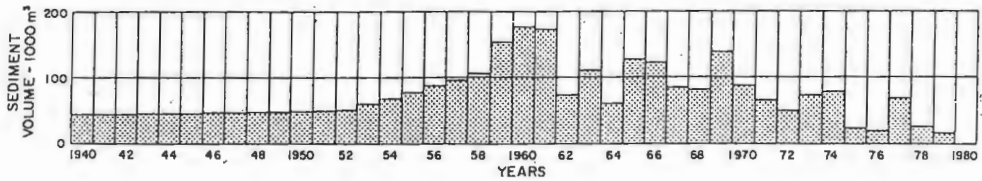


FIG 12 - ASHBRIDGE'S MARSH/HARBOUR  
EVOLUTION 1846-1912





#### NOTES

1. VOLUMES FROM 1974 ON ARE TAKEN FROM ANNUAL BATHYMETRIC SURVEYS.
2. YIELD CALCULATIONS ARE BASED ON AN IN-SITU DENSITY OF  $1350 \text{ kg/m}^3$  AND A DRAINAGE AREA OF  $36,100 \text{ ha}$ .
3. SINCE THE BASIC DATA USED HERE ARE DEPOSITED VOLUME, ONLY A PORTION (ABOUT 60%) OF THE MASS TRANSPORTED BY THE RIVER IS ACCOUNTED FOR IN THESE FIGURES.

#### KEATING CHANNEL STUDY VOLUMES OF SEDIMENT IN KEATING CHANNEL

FIG. 13 KEATING CHANNEL SEDIMENT VOLUMES

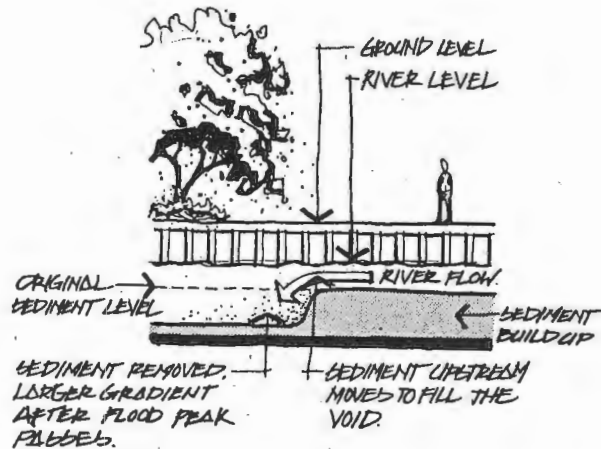


FIG. 14 - SECTION - KEATING CHANNEL DREDGING

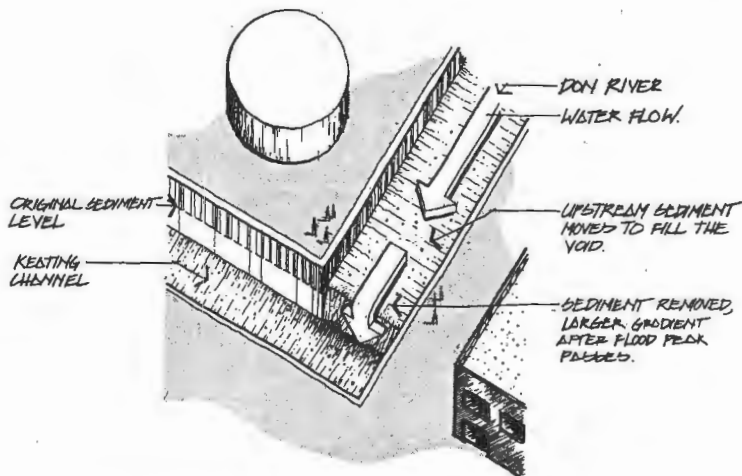


FIG. 15 - AXONOMETRIC - RIVER/KEATING  
CHANNEL SEDIMENTATION



*Scadding cabin on the Don*

*First*, it was an important source of water and a transportation route, which led to the concentration of industries and environmentally destructive uses around it, among them the mills, distilleries and tanning factories. There was also brick making, the Don Prison and a cholera hospital.



*P.R. Lamb Glue and Blacking Manufactory (circa 1880)*

*Second*, the valley was seen as a barrier to eastward expansion of the City, particularly in view of the precarious nature of the bridges during the Don's frequent floods. By the end of the 19th century, the river south of Gerrard Street was straightened to facilitate the development of industrial land and to create another railway entrance to Toronto.

*A third perception* of the Don was that its marshes and forests provided breeding grounds for mosquitos and were thus a source of fever and ague and this view lent credibility to the argument that straightening out the lower river (in 1886) and filling in the marshes would "secure the sanitary condition...to the said river".<sup>14</sup> Thus, by the early 20th century, only about 10 percent of the watershed remained in forest

cover and the 1912 Toronto Harbour Commission plan for the port industrial area resulted in the filling of the marshes at the mouth of the Don. These "improvements", together with the increasing amount of pollutants pouring into the river by the industries operating on its banks, turned a natural and peaceful valley into a large open sewer guarded on either side by impenetrable ribbons of steel and concrete.

*The fourth perception* of the valley lay in its convenient use as a cheap transportation route. The Beltline railway that opened in 1892, linked the Don and Humber valleys and the waterfront and station stops were built in Moore Park, Rosedale, Don Valley, Gerrard, Don and Union Station. Charles Sauriol comments on the railway.<sup>15</sup>

*"A passenger who made the twenty-five mile trip around the Belt Line in 1892 relates that the rails ran along the waterfront from the Don to east of Jane Street and west of the 'factory' at Swansea. Here, they turned north through Home Smith property to Bloor Street. Crossing Bloor, the railway 'cut' Jane Street at this point, continuing north and westerly on the bench of land east of the Humber above the old mill, through the orchard of the Baby family, then past Baby Point, then north-easterly and east to Yonge Street on the north side of Mount Pleasant cemetery. The Belt Line then followed the Moore Park ravine to the Don Valley. The route continued down the west side of the Don Valley and Don River to the Esplanade and to the Union Station. The fare was twenty-five cents per trip. The trains ran every hour early and late in the day.*

*"Surprisingly little information is available on the subject of the Belt Line Railway. Up until 1914 the rusty rails and decaying sleepers could still be*



*Railroad tracks in the Don (circa 1953)*

seen in the sylvan ravine of 'Mud Creek'. I have heard it said that the rails were removed during the first World War to be used as scrap metal. Mr. Herb Staples, son of the late Owen Staples, recalls that the rails were in place in 1912. He also remembers seeing some rusty, old-fashioned locomotives on a siding near the present Brick works.

*"In less than two years from its inception, the Belt Line Railway was a thing of the past. This seems surprising enough considering its advantages: Toronto was then emerging from the era of its horse-drawn street car days. The Belt Line Railway held the promise of a thrilling twenty-five mile ride around the outskirts of the City and through some of the loveliest ravines. It offered an opportunity for entire families to spend a day in the country and with ease, considering the frequency of the schedule. To some observers of the 1890's, the project was thirty years ahead of its time. People were obviously not ready for it; a condition reflected in the number of passengers it carried."*

The line closed in 1894. By 1946, the area south of Eglinton Avenue and to the west of the Don was urbanized with the density of development reducing to the north and east.

Watershed planning, begun in Europe and the United States in the 1920s and 1930s, was also initiated in 1950 with the publication of the *Don River Conservation Report* that presented a well-documented account of the river's systems and approaches to its protection and rehabilitation.<sup>16</sup> Four years later, however, Hurricane Hazel struck the region, the worst storm ever experienced. Together with the rapid expansion of the City, this profoundly effected attitudes to the river. Transportation routes replaced reforestation and conservation as perceived priorities. The construction of the Don Valley Expressway and the Bayview Extension in the 1950s continued the transformation of the Lower Don from a natural wildlife corridor into a transportation corridor. Like the Nordheimer ravine, whose future in the 1960s appeared to be destined for the Spadina Expressway, the Don was perceived as cheap available land, with few political impediments of any consequence to inhibit the growth of the City's highway system. The 1960 *Natural Parklands* report by the City of Toronto Planning Department, urged the protection of the



Construction of the Gardiner/Don Valley sweep

City's remaining ravines and work to accomplish this objective was carried out during the 1970s and 1980s.

These perceptions of the valley – an impediment to growth on the one hand and as a convenient dumping ground for all manner of undesirable uses on the other – contributed in less than 150 years to the increasing flooding, pollution and destruction of the unique natural values inherent in Toronto's valley and ravine systems and the wider environmental impacts on Lake Ontario. It was only in the 1980s that public concerns for environmental quality became a major political and health issue and a realization that the challenge for the future revolved around the protection and rehabilitation of the valley and its ravines. The Crombie Commission's focus on an approach to the waterfront that integrates issues of the lake and its shoreline with those of the valleys that feed into it, the Kanter report for a greenbelt strategy for the Greater Toronto Region, the Metro Toronto Remedial Action Plan (RAP), *The Toronto Area Water Management Study (TAWMS)* for the Don River and countless other studies of Metro's waterways, are an indication that a major transformation is occurring in public attitudes and values towards the health of the City's natural places.

### 3.2 The History and Context of the Valley

The Don River, particularly in its lower reaches, is rich in cultural and industrial history. One of the realities of the restoration concept is that it must incorporate a past that cannot be ignored and which contributes to its sense of place. Among the most significant remaining relics of the valley's industrial uses and its neighbourhood context are the following.



### 3.2.1 Places Within The Valley



*Don Valley Brickworks*

#### The Don Valley Brickworks Plant

Founded about 1890 by the Taylor Brothers, the Brickworks were, until their purchase by Torvalley Development in 1984, one of the oldest and longest operating Brickworks in Ontario. The factory manufactured a wide variety of brick products and was at one time the only yard in the province producing soft-mud, stiff-mud and dry-press bricks all at the same time. From 30 brick yards in the Toronto region early in this century, it was, until its closure, the only remaining plant in production in Metropolitan Toronto. The influence and contribution of the Brickworks to Toronto's skyline has been considerable and many of the City's buildings have been made from the bricks manufactured here. Among the most important are Hart House, Trinity College and Convocation Hall at the University of Toronto; Casa Loma and its stables; Queen's Park; the Ontario Legislature; Osgoode Hall; and Massey Hall. The Don Valley, therefore, is directly linked to the City's historical development and has had a great influence on its built form.

The Don Valley brickyard is best known, however, for the internationally significant geology of its north face. This has become known to geologists all over the world as a unique opportunity to study the glacial



*Don Valley Brickworks – north slope*

deposits of the Saugamon and Illinois periods that occurred as early as 300,000 years before the last Wisconsin period of glaciation. A long-range plan for its rehabilitation was completed in 1990.



*Todmorden Mills*

#### Todmorden Mills

Tucked in a bend in the Don Valley, opposite the Brickworks, Todmorden Mills began in 1794 when the Skinner family built a sawmill to exploit the timber in the valley. During the 19th century, an industrial village thrived here, which included a paper mill, brewery and brick factory. The mills were sold to John Eastwood and Thomas Helliwell, both Yorkshire men, the latter hailing from the town of Todmorden, from which the name Todmorden Mills was derived.<sup>17</sup> In the 1950s, the Don Valley Expressway altered the site's topography cutting off the loop in the river and garbage was dumped on the floodplain between the Expressway and the old riverbed. It remains today an open mound capped with soil where trees have difficulty growing. By 1962, the river had been re-routed away from the village, isolating the bend in the valley from the river itself. Todmorden Mills became a historic park in 1967.<sup>18</sup> In addition to the village's important buildings, it is where the railway station that serviced the Beltline railway at Queen Street was moved to in 1969.

### 3.2.2 Places Above the Valley

#### The Necropolis

The Necropolis located in Cabbagetown dates from about 1850 when a group of Torontonians, including the Honourable John McMurrich, opened the City's second non-sectarian burial ground overlooking the Don Valley between Winchester and Gerrard Streets. The trustees of the first non-sectarian cemetery, known as Potters' Field in the new town of Yorkville, purchased the Necropolis in 1855. Among those bur-





*The Necropolis Cemetery*

ied there are William Lyon Mackenzie, who was also the secretary of the group that joined together in 1825 to form the York General Burying Grounds, predecessor of today's Toronto Trust Cemeteries today. Others include Ned Hanlan, champion oarsman; George Brown, journalist and founder of Confederation; and John Ross Robertson, founder of the Toronto Telegram newspaper.<sup>19</sup>

#### Riverdale Park

In 1856, the City of Toronto purchased 119 acres of land from the Scadding estate. In 1890, the City set aside all lands acquired from the Scadding estate for park purposes, except for the jail property. The pre-



*Riverdale Park West*

sent Riverdale Park covers 162 acres. The Riverdale Zoo was established in 1899. The Riverdale flats were once the Jail Farm. In the early days of the park, red-coated militia regiments fought each other in sham battles which took place in that part of the Don Valley.<sup>20</sup> Today, the park includes a mini farm that houses a variety of domesticated breeds of farm animals and is visited by school groups from around the City.

#### Castle Frank

This plateau overlooking the Don Valley was purchased by Governor and Mrs. Simcoe as a country retreat. The house was built in 1794, its style referred to as that of a Grecian temple.<sup>21</sup> Castle Frank became the centre of social activity for the garrison stationed at Toronto and the focal point of interest for the Simcoe's during their stay at York. Castle Frank survived the war of 1812, but in 1829 the building, in total disuse, was burnt to the ground.<sup>22</sup>

Charles Sauriol writes "*throughout the years the name 'Castle Frank' has been handed down from generation to generation of Toronto schoolboys. Few, indeed, do not know of the lofty plateau along which gay parties long, long ago rode to the rustic summer home of the Simcoe's.*"



*Wellesley Park*

"The site of 'Castle Frank' was marked at one time with a commemorative stone, of which there is evidence today. The upper half of a large boulder protrudes from the plateau a short distance south of the site of 'Castle Frank'. By rubbing charcoal over the face of this boulder, I was able to discern the figures 1796 and to the left of this date, the letters A.H.M.V. and Y.O.C.U."<sup>23</sup>

## 4 Existing Conditions

### 4.1 Engineering Infrastructure

Bridges, railways and sewers have been constructed on an ongoing basis throughout the 20th century. The following dates show the progression of development of the infrastructure associated with the Don.

- 1900-1925    The Bloor Street Bridge (Prince Edward Viaduct)  
                  The Low Level Interceptor (a major west to east trunk sewer, about 3 metres deep intercepting north-south local sewers)  
                  The High Level Interceptor (a larger west to east trunk sewer, about 6 metres deep)  
                  The abandoned bridge structure at the extension of Eastern Avenue  
                  The railway to East Toronto industries
- 1925-1950    The water tunnel from R.C. Harris Filtration Plant to the John Street Pumping Station
- 1950-1975    The mid-Toronto interceptor  
                  Trunk Metropolitan water mains

Roads were the later intrusions in the valley and include the Bayview extension and the Don Valley Expressway, which was completed in the mid 1950s.

#### 4.1.1 Trunk Sewers

Trunk sewers in the Don Valley are located above the North Toronto Sewage Treatment Plant. Sewage not treated at this plant flows east along the valley in the North Don trunk to the confluence of the east and west branches of the river.

The North Toronto trunk from the west and the East and West trunks from the north that come down the east and west tributaries of the Don River and the Massey Creek trunk sewer, all converge and are conveyed to the main sewage treatment plant by the deep Coxwell tunnel. If this tunnel should be overloaded, the North Don trunk reverses its flow to the North Toronto plant and overflows to the river at that point. This situation occurs only rarely.

#### 4.1.2 Combined Sewers

A combined sewer system consists of a pipe system which intercepts both the sanitary sewage flow from the individual buildings and also intercepts stormwater runoff by means of catchbasins, private yard drains, ditch drains and roof leaders. A combined sewer system was originally built when the City of Toronto was growing. These sewers follow the existing ground relief and outlet to the Don River or Lake Ontario. Prior to discharging to the receiving waters, the combined sewers are partially intercepted at a number of locations by Metropolitan Toronto's three main interceptors namely Mid-Toronto, High Level and Low Level Interceptors. The total area of the City that is within the Don River watershed is served by combined sewers which are also intercepted by these three interceptors. Once the interception capacity is exceeded these combined sewers then overflow directly to the Don River. The intercepted flows are directed to the Main Treatment Plant for treatment and then discharged as effluent to Lake Ontario.

The combined sewage contributing to the Don River originates from the following locations:

- overflow system at the North Toronto Sewage Treatment Plant;
- combined area from the City of Scarborough which overflows to Massey Creek (a tributary of the Don River);
- Borough of East York with Combined Sewer Overflows (CSO) to Massey Creek and the Don River;
- City of Toronto combined system which overflows to the Don River.

#### 4.1.3 Storm Sewers

Other trunk storm sewers drain to the Don. The eastern area of the City of York drains to the Spadina Expressway storm sewer which runs through the Balfour Park valley and eventually discharges to the river beneath the Bloor Street viaduct. The Wellesley Street, Gerrard Street, Dundas Street and Queen Street storm sewers discharge flows to the Don from contributory areas west of the river. The Broadview Avenue dropshaft collects the flow from the trunk storm sewer that runs along the southern boundary of the Borough of East York and then discharges to the river (Figure 16).

#### 4.2 Water Quality: Present Conditions

A 1989 report prepared for the Steering Committee, *The Toronto Area Watershed Management Study (TAWMS)*, summarizes water quality issues on the Don River.

- a) The watershed is approximately 70% urbanized. The river and its tributaries are consequently subject to various potential sources of pollution from:
- storm sewer discharges (Figure 16A)
  - Combined Sewer Overflows (CSO) from Toronto, Scarborough and East York
  - spills
  - flows from the North Toronto Water Pollution Control Plant (WPCP)
  - cross connections between sanitary and storm sewers
  - snow dumps
  - landfill sites
  - agricultural and rural sources
  - stream bank erosion
  - construction activity and atmospheric fallout.
- b) Water quality data collected in the 1980s indicates that the river is often turbid, eutrophic and generally degraded throughout most of the water course according to Provincial Water Quality Objectives.

- c) The quality of stormwater runoff from urban areas may be considered as presented in Table 1. This Table was obtained from the Nationwide Urban Runoff Program which consists of the compilation of data from twenty-eight urban study areas in the United States. As such, this table is considered to be representative of the quality of stormwater runoff from urban areas. The major cause of the river's poor water quality under present-day conditions was found to be discharges from separate storm sewers. This conclusion is supported by model results from *Phase 1 of the Toronto Sewer System Master Plan Study* (Gore & Storrie Ltd./MacViro Consultants Inc., 1991). This study noted that six major outlets within the City of Toronto accounted for 77 percent of the annual pollutant loadings from the City to the Don River. Of these outlets, approximately 66 percent of the total annual pollutant loadings to the river were from four separate storm sewers, two of which had some CSO contributions in their upper reaches. These outlets were:

- Blythwood Road and Sherwood Avenue (17.4 percent)
- Park Drive Reservation (17.2 percent)
- Wellesley Street (some CSOs; 19.9 percent)
- Craigleigh Gardens (west side of the Don) and Danforth Road (east side of the Don) (some CSOs; 19.7 percent).

Table 1

**Stormwater runoff quality in urban areas** (EMC\* mean values used in load comparison)

| Constituent                 | Median Urban Site | Site Mean EMC              |                                |
|-----------------------------|-------------------|----------------------------|--------------------------------|
|                             |                   | 90th Percentile Urban Site | Values Used in Load Comparison |
| TSS (mg/l)                  | 141-224           | 424-671                    | 180-548                        |
| BOD (mg/l)                  | 10-13             | 17-21                      | 12-19                          |
| COD (mg/l)                  | 73-92             | 157-198                    | 82-178                         |
| Tot. P (mg/l)               | 0.37-0.47         | 0.78-0.99                  | 0.42-0.88                      |
| Sol. P (mg/l)               | 0.13-0.17         | 0.23-0.30                  | 0.15-0.26                      |
| TKN (mg/l)                  | 1.68-2.12         | 3.69-4.67                  | 1.90-4.18                      |
| NO <sub>2+3</sub> -N (mg/l) | 0.76-0.96         | 1.96-2.47                  | 0.86-2.21                      |
| Tot. Cu (ug/l)              | 38-48             | 104-132                    | 43-118                         |
| Tot. Pb (ug/l)              | 161-204           | 391-495                    | 182-443                        |
| Tot. Zn (ug/l)              | 179-226           | 559-707                    | 202-833                        |

EMC\* = Event Mean Concentration

Source: *Nationwide Urban Runoff Program (NURP) Report, December 1983*





FIG.16 - DON RIVER SEWERSHED



It should be noted that the majority of loadings to the Lower Don originate upstream of the study area (Figure 17). This will have a major impact on the success of remedial measures to improve water quality which are applied strictly within the jurisdiction of the City of Toronto.

- d) Pollutant concentrations tend to be higher at the river mouth. This may be due to the low stream gradient within the Lower Don and backwater effects from the lake which combine to produce an area of low dispersion and deposition of contaminant carrying sediments. It may also be due in part to a possible concentration of contaminants from flow losses caused by evaporation and infiltration and in part to relatively high pollutant loadings from older urban areas, higher CSO volumes and industrial activities. These factors have a bearing on the type and success of remedial measures and should be verified.

#### 4.2.1 Water Quality Management

Approximately 1,900 hectares of the City of Toronto lands drain directly to the Don River. This constitutes about 5 percent of the total watershed area of 36,000 hectares, the remainder of which lies within a number of other jurisdictions. Assuming equivalent pollution loadings from sewers per unit area throughout the watershed and an approximate removal efficiency of pollutants of 50 percent, the City on its own could expect to achieve a 2.5 percent reduction in annual loadings to the Don River through the virtual elimination of CSO and the treatment of stormwater. This figure, although only a first approximation, shows that the majority (greater than 95 percent) of the annual loadings to the Don River originates outside of the City's jurisdiction and that the long-term health of the river is heavily dependent on the co-operation of all the jurisdictions within the watershed. Such action by the City, however, would be a positive and necessary step toward the ultimate restoration of the river. The City should, consequently, adopt a phased approach to the implementation of abatement strategies.

#### 4.2.2 Studies and Proposals

Numerous studies are being undertaken by the City and Metro. They include the following.

##### 1. *Ashbridges Bay Sewage Treatment Planning (MSTP)* – Metro Works Department

This study is considering an expansion of capacity of the MSTP to:

- provide for infill development in North York;
- provide for treatment of Combined Sewer Overflows (CSO). (Some of these CSO now end up in the Don River and its tributaries.);
- possible future replacement of the North Toronto Treatment Plant. The effluent from this plant now flows into the Don River.

##### 2. *Don Trunk Sanitary Sewer System Improvements* – Metro Works Department

New Trunk Sanitary Sewers within existing MSTP drainage area will:

- provide more capacity for flow from North York;
- provide CSO detention in Massey Creek and Don Rover (Scarborough and East York – North Toronto Treatment Plan).

##### 3. *The Ongoing City Sewer System Master Plan* – Department of Public Works and the Environment

This study is intended to control and significantly reduce CSO to the Don River and Lake Ontario and to control and reduce the negative effects of storm runoff. It examines:

- upstream controls to reduce storm runoff into storm and combined sewers;
- further separation of combined sewers;
- detention and treatment of CSO;
- end of pipe treatment on storm sewers.

##### 4. *Water Conservation Plans* (City and Metro)

These studies, in general, aim to reduce demand for treated water, thereby:

- reducing the need for expanded water treatment plans;
- reducing the need for expanded sewage treatment plants.

Water conservation will have negligible impact on CSO and no impact on storm runoff and therefore negligible impact on the Don River.



These studies are interrelated in the following ways:

- Studies 3 and 4 affect the final capacity of the MSTP (Study 1);
- there are limits to the size of the MSTP which affects Study 3;
- study 2 must know the location of the expanded capacity of the MSTP (and vice versa);
- there are opportunities to combine some of the facilities proposed in Studies 2 and 3;
- Studies 1, 2 and 3 are subject to Environmental Assessment.

The Remedial Action Plan (RAP) for the Metro Toronto Waterfront will include strategies and programs to clean up (restore to beneficial uses) all the Toronto Watersheds. The works, policies and programs coming out of the above four studies will make up part of the RAP.

## 4.3 Plants and Animals

### 4.3.1 Vegetation As It Was

The vegetation of the valley and its tributaries, most of it long gone, still provides something of a record of the original associations that existed prior to European settlement. Prior to European settlement in the late 1700s, most of the Don River drainage area was covered by the mixed coniferous and deciduous trees of the Great Lakes-St. Lawrence Forest Region. In most areas, sugar maple, beech and spruce interspersed with white and red pine, dominated the forest and almost pure stands of pine covered fairly extensive areas in the well-drained soils of the till plain. The northern limits of the oak-dominated Carolinian forest reached the old Lake Iroquois shoreline west of Yonge Street.<sup>24</sup>

As need for cleared land arose, the forest was cut, first for forts and trading posts, then for farmsteads and after that for mills and settlements. Although the largest and straightest trees were selectively cut for export to England, most trees were at first used locally. Only in the latter half of the nineteenth century were they milled and shipped to Montreal and beyond. The removal of the forest was gradual, "but by 1890 all the townships, including Markham, Scarborough, Vaughan and York were almost 90 per cent cleared".<sup>25</sup>

The original forest cover played a vital role in maintaining the health of the drainage area and the quality of its waters. It aided the infiltration of rainwater into the watertable and helped control the rate of flow of the Don. The forest prevented erosion, it recycled soil nutrients and organic matter. It kept the streams cool and maintained the diverse fish life that Lady Simcoe and others marvelled at in early days of settlement. Thus among the most critical of any strategy to restore the Don will be the reforestation of its slopes and bottom lands.



City of Toronto Archives

*Natural beauty of the Upper Don*

### 4.3.2 Vegetation As It Is Today

The ravines that join the river and the Don's less disturbed channels further north serve to remind us what the valley used to be like. Within the valley proper, from the forks and progressively south to the Keating Channel, remnants of natural vegetation become increasingly scarce, however and in many highly disturbed places, cultivated species have invaded and replaced the native plants. The following sections outline the types and condition of vegetation as it exists today.

#### The Plant Communities

Toronto lies at the division between the mixed coniferous and deciduous vegetation zone of the Great Lakes-St. Lawrence Forest region (maple, beech, white and red pine) and the oak/hickory dominated Carolinian forest region. Within the Lower Don area south of Pottery Road, vegetation can be classified into five areas of categories or associations (Figures 18 to 20).

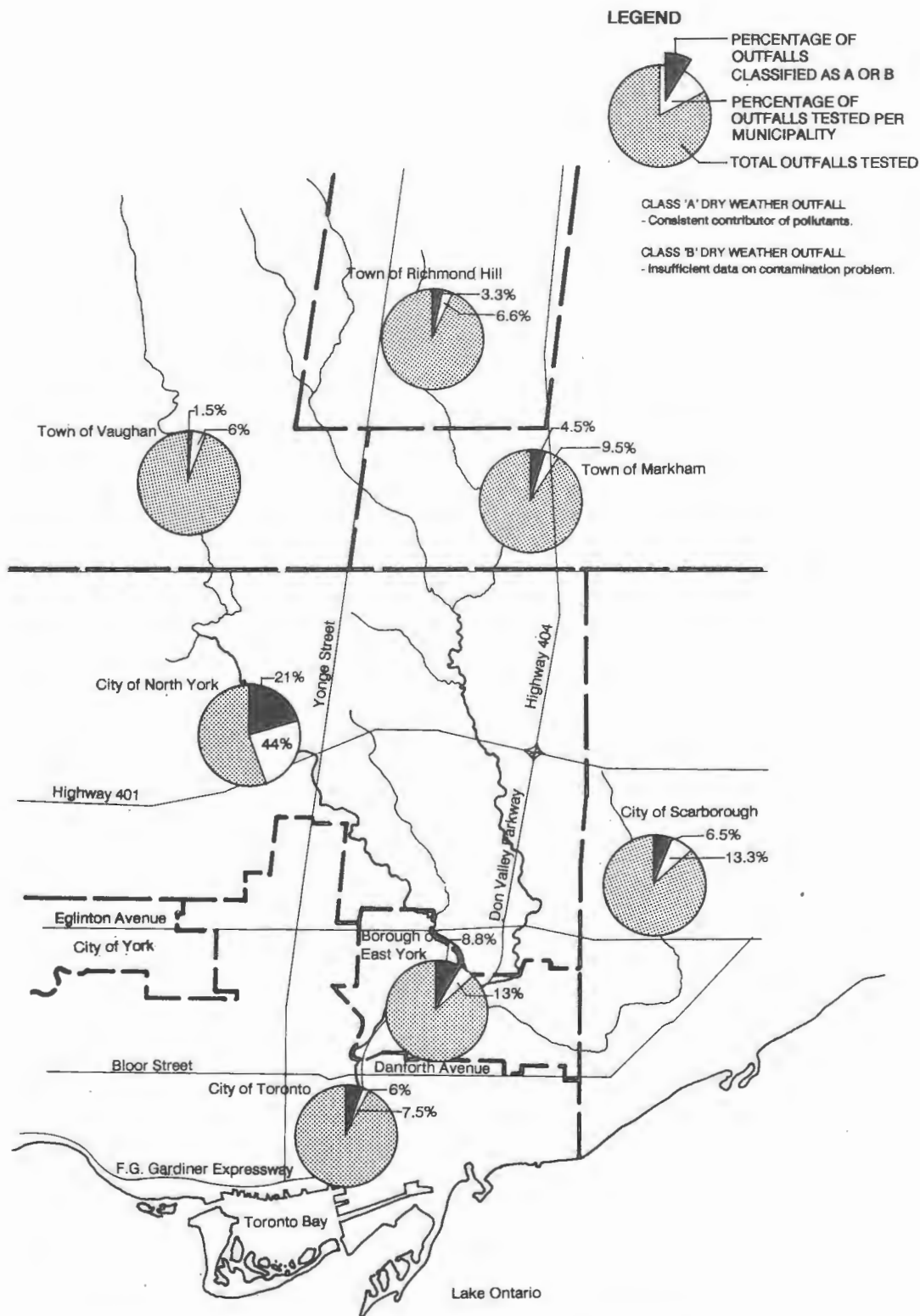


FIG.17 - DRY WEATHER OUTFALLS BY MUNICIPALITY

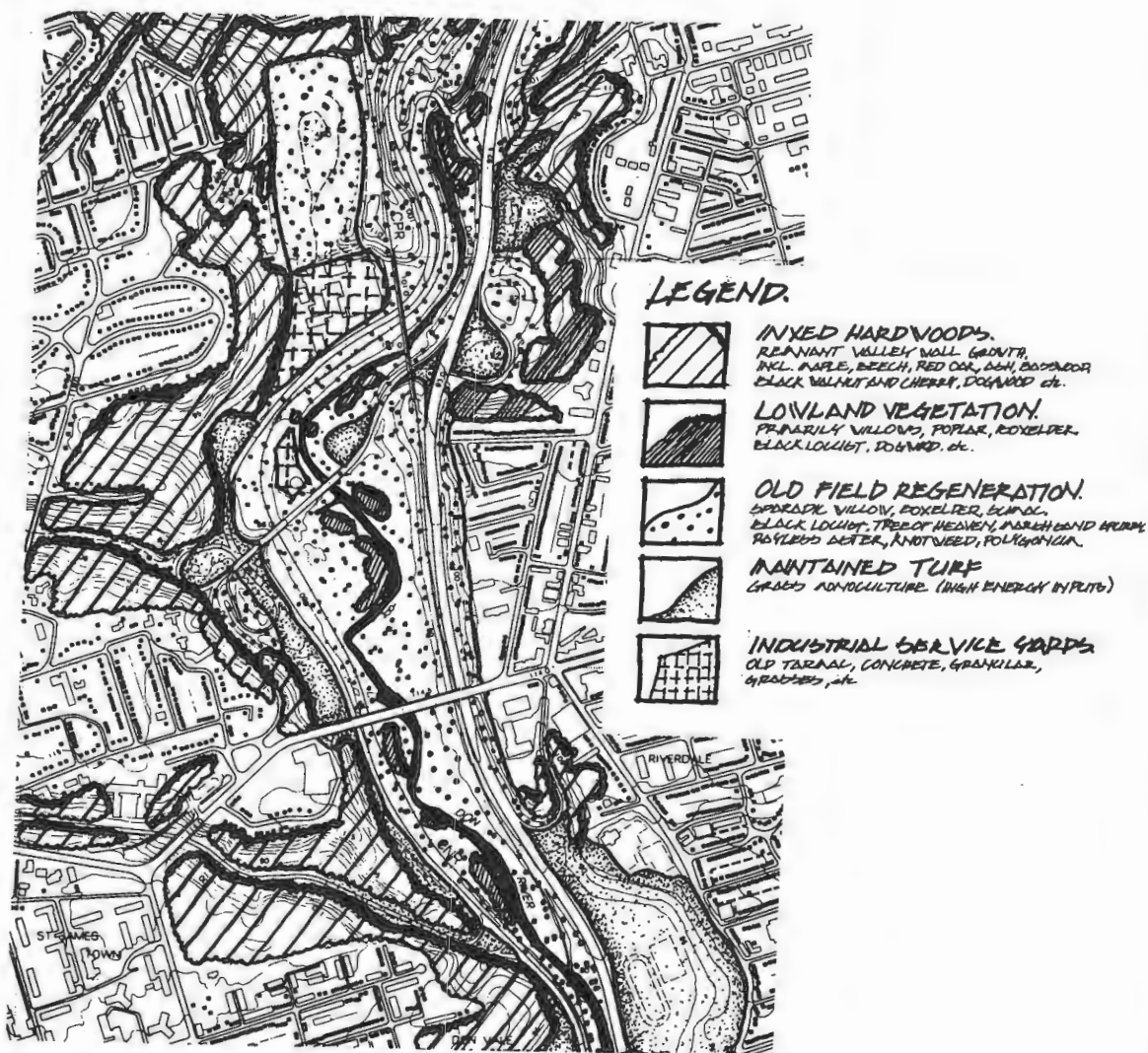


FIG. 18 - PLANT CATEGORIES - ROSEDALE FLOODPLAIN.



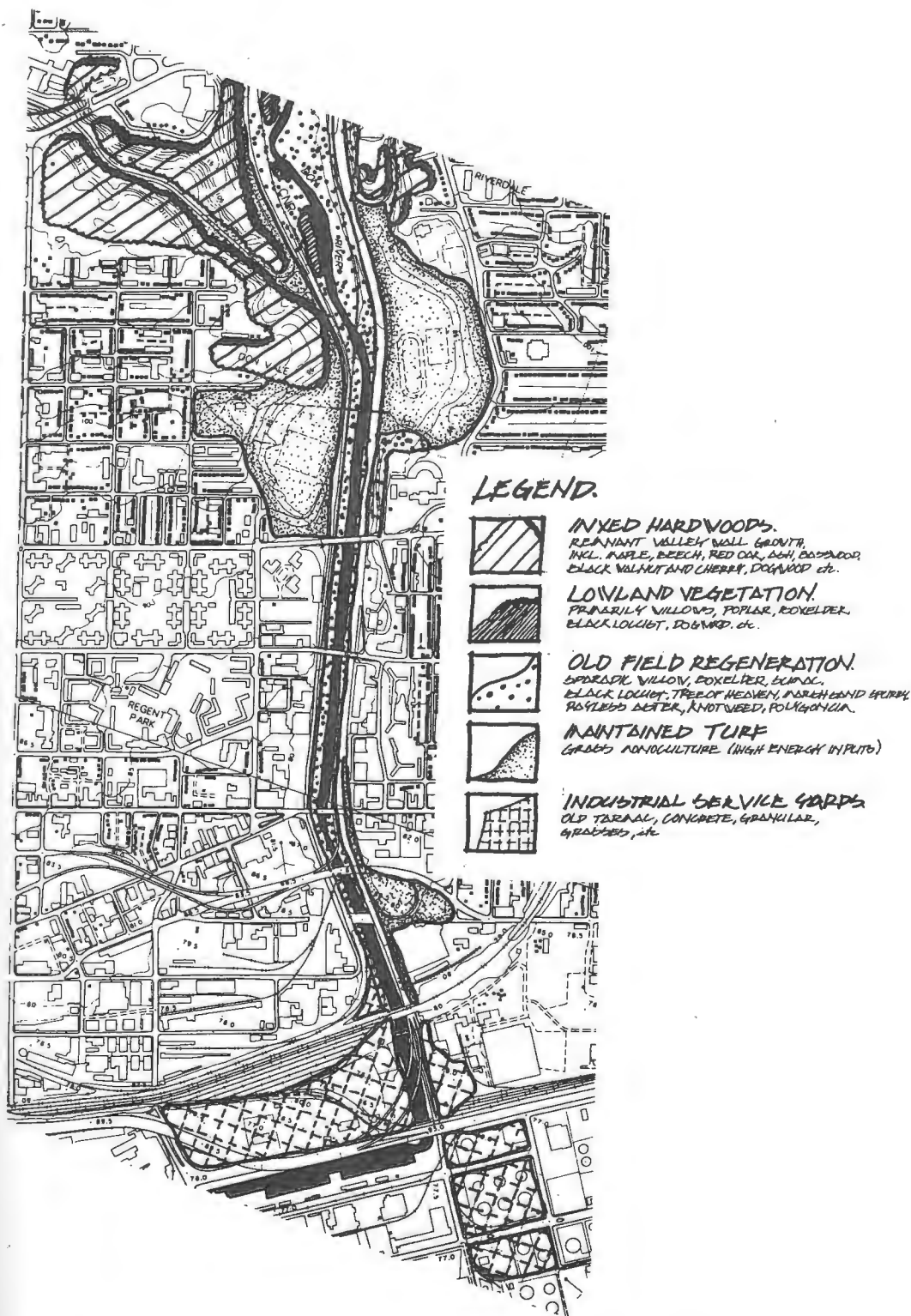


FIG. 19-PLANT CATEGORIES-RIVER CHANNEL



### LEGEND.



**INYED HARDWOODS.**  
REMANANT VALLEY WOOD GROWTH,  
INCL. MAPLE, BEECH, RED OAK, ASH, DOGWOOD,  
BLACK WALNUT AND CHERRY, DOGWOOD etc.



**LOWLAND VEGETATION.**  
PRINCIPALLY WILLOWS, POPLAR, BOXELDER,  
BLACK LOCUST, DOGWOOD, etc.



**OLD FIELD REGENERATION.**  
SPORADIC WILLOW, BOXELDER, SUNKO,  
BLACK LOCUST, TREE OF HEAVEN, NORTHERN BERRY,  
POPLED BERRY, KNOTWEED, POLYGOONIA.



**MAINTAINED TURF**  
GRASS, AGRICULTURE (HIGH ENERGY INPUTS)



**INDUSTRIAL SERVICE YARDS**  
OLD TARMAL, CONCRETE, GRANULAR,  
GRAVELS, etc.

FIG. 20 - PLANT CATEGORIES - PORTLAND.

### Mixed Hardwood

These areas occur primarily on the well drained slopes of the Don Valley and its tributaries on the west side (Moore Park Ravine, Vale of Avoca and Park Drive Reservation and Rosedale Valley). The ravine slopes are undoubtedly the best protected areas, with a red and white oak, beech and maple canopy, remnant white pine and a relatively undisturbed understorey and ground layer. These are, therefore, highly significant forest remnants to remind us what the region used to be like. Disturbance to the ravine system floor has been extensive over the years, however, creating a variety of other associations.

*Moore Park Ravine* has been disturbed by the old beltline railway bed, which is now a walking trail. Natural regeneration is occurring on the floor of the ravine with Manitoba maple, Chinese elm, etc. There is extensive damage south of Moore Avenue to the south-west slopes from dumping and building construction. Stagnant woodland ponds and erosion are the consequence of the realignment of the stream that took place when the Beltline Railway was built.

*Vale of Avoca.* There is impact on the ravine floor from park development, which includes the introduction of exotic species, extensive mown turf and the consequent disappearance of understorey vegetation. Streams channelized by stone work and rip-rap and gabian baskets occurred in early 1970s.

*Park Drive Reservation.* The stream in this ravine was channelized in the 1970s to accommodate the main storm sewer from the Allan Expressway. Since that time, it has been recolonized by Manitoba maple, alder and elm. A small wetland has been created from road dyking at the clover leaf connecting the Expressway in the Don Valley and is fed by cold water springs in this location and further up the ravine.

*Rosedale Valley.* There have been major impacts from the road and fill on some slopes, which has resulted in poor quality regeneration. Norway maple and sycamore maple are significant invading species on the slopes. The stream has disappeared since construction of the Rosedale Valley Road.

### Lowland Vegetation

The poorly drained valley and ravine floors include willow, poplar, Manitoba maple, black locust and dogwood, which are found sporadically in pockets

through the river floodplain and bottom lands. Black (or crack) willow copses, where they occur, appear to have little regeneration (see Figures 21 to 23).

*Old Field Regeneration.* Much of the Don River floodplain has been disturbed and consists of regenerating meadow (aster, knotweed, goldenrod, polygonum, grasses) with sporadic clumps of willow, Manitoba maple, tree of heaven and black locust. Highly disturbed valley slopes containing sumac and regenerating shrubs and trees include the Don River Brickworks, Chorley Park, the west slopes of Bayview extension and some east (and inaccessible) slopes to the east of the expressway.

*Maintained Turf.* Grass monocultures developed to stabilize engineered valley slopes and flat lands occur in numerous locations. They include: parkland development in the Vale of Avoca, Riverdale Park and the upper level of Chorley Park; Todmorden Mills; the left-over spaces within clover leaves; land associated with the Bayview extension; and development on both sides of the valley.

*Industrial Service Yards.* These include old tarmac, concrete and granular materials found in various places in the valley, the largest area being that associated with the Keating Channel and the wastelands between the railway marshalling yards and the north shore of the Keating Channel. Among the most dramatic and complex naturally regenerating plant communities occurring in the study area are some of the abandoned lands in the port industrial area.

### 4.3.3 Aquatic Habitat

Wetlands are known to be the most complex and productive habitats, providing an immense diversity of aquatic flora and fauna including fish, herpetiles and birds. They are also vital reservoirs of fresh water and help even out the extremes of stream flows after heavy rains and in dry periods. Unfortunately, little wetland habitat remains south of Pottery Road except in isolated locations, viz. Reservation Drive, the Binscarth Ravine and the river oxbow of Todmorden Mills that has been isolated by the Don Valley Expressway. The removal of riparian habitat and canopy, channelization of the river, degraded water from phosphate input, heavy metals and warm water, has left few of the original species of fish remaining today. However, despite impacts of urbanization several species including white sucker, blacknosed dace,



longnose dace and creek chub still remain. Furthermore, the physical habitat of the river is such that if water quality conditions were improved, an improved fishery could be re-established.<sup>26</sup>

#### 4.3.4 Wildlife

There are three wildlife areas of particular significance along the Lower Don that have a remarkable diversity of habitat. They are:

- the oxbow at Todmorden Mills (isolated from the river by the Don Valley Expressway);
- the untouched Binscarth Ravine;
- the wildlife refuge north edge of Riverdale Park (west side);
- the regenerating lands of the Portlands (Cherry Beach to the Leslie Street Spit).

Together with the ravine system, the Don Valley's fair degree of overall diversity as a migratory corridor, provides habitat for many resident and migrating birds, particularly in the less disturbed upper reaches. Mammals, butterflies and foxes are common in the forested ravines. Spring and fall birds and monarch butterflies migrate through the corridors, hawks prey on small mammals in open meadows, heron, kingfishers, ducks and mergansers are to be found along the river banks and the warm water emanating from sewer outfalls. In fall and winter, skunks and raccoons hibernate, coming out to feed on berries and other available food in warmer weather. All this life is an indication that the river is, contrary to general perceptions, far from dead and a viable candidate for restoration.



*Ducks at a combined sewer outfall*



#### 4.4 The Valley as Sensory Experience

The sensory experience of walking through the valley, the emotional responses people have to the place and their observations and knowledge of its problems and opportunities, are arguably the key factors that provide a holistic picture of the valley's essence as a valley. Analytical data only confirms and completes the picture of this understanding of the place.

Visually, the sense of the valleys from road, rail, drainage system map and destructive land uses occurs primarily between the Keating Channel and Gerrard Street. It is the remnants of a ruined valley unloved and uncared for over a hundred years or more, sensorially deprived and lacking a sense of investment in the place as cared for natural habitat. But north of Riverdale park the sense of the natural valley begins to re-assert itself. The river becomes a river, with natural dimensions, widths, depth, floodplain and meanders; vegetation appears in the floodplain and on the valley slopes, the spatial quality, breadth of view and sweep of the valley bottom establishes once again the sense of the grandeur of a river and its floodplain, degraded but clearly identifiable (Figure 24).

Dominant images of the place pervade:

- a place difficult to get into but once in, difficult if not impossible to get out of;

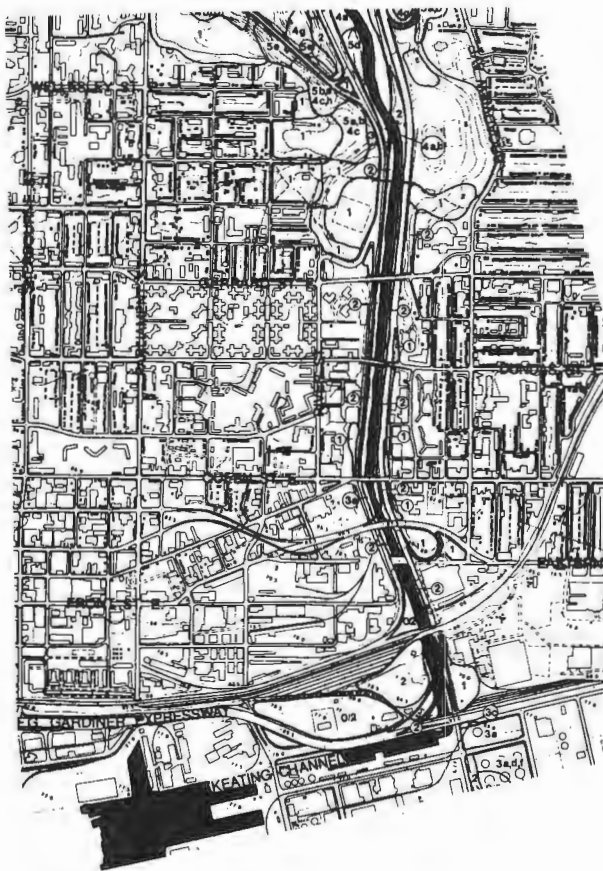


#### Categories

0. Derelict Industrial Land
1. Mown Turf  
mown turf with tree canopy
2. Long Grass (or crown vetch)
3. Early Stages of Regeneration
  - a. old field
  - b. floodplain meadow
  - c. cat-tails
  - d. red osier dogwood
  - e. sumac
  - f. aspen, poplar
  - g. ash, cherry
  - h. various shrub masses, mostly horticultural
4. Healthy Regeneration
  - a. willow
  - b. aspen, poplar
  - c. black locust
  - d. Manitoba maple
  - e. maple, ash, oak
  - f. witch-hazel understory
  - g. elm
  - h. Norway maple
5. Established Woodland
  - a. sugar maple, ash (mixed hardwood)
  - b. red oak, white oak
  - c. hickory
  - d. crack willow
  - e. crack willow/Manitoba maple

LOW  
↑  
complexity  
↓  
HIGH

FIG. 21 - VEGETATION COMPLEXITY - ROSEDALE FLOODPLAIN.



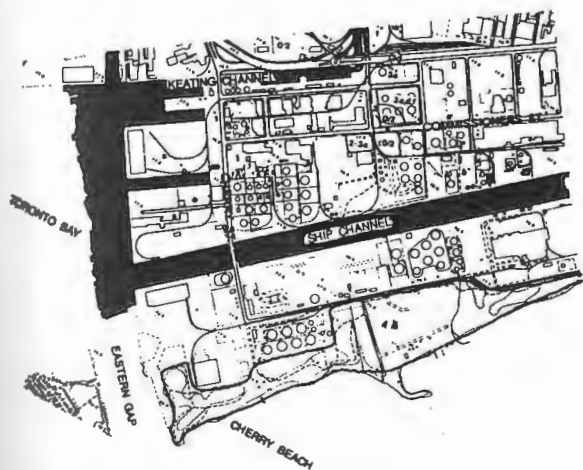
#### Categories

0. Derelict Industrial Land
1. Mown Turf  
mown turf with tree canopy
2. Long Grass (or crown vetch)
3. Early Stages of Regeneration
  - a. old field
  - b. floodplain meadow
  - c. cattails
  - d. red osier dogwood
  - e. sumac
  - f. aspen, poplar
  - g. ash, cherry
  - h. various shrub masses, mostly horticultural
4. Healthy Regeneration
  - a. willow
  - b. aspen, poplar
  - c. black locust
  - d. Manitoba maple
  - e. maple, ash, oak
  - f. witch-hazel understorey
  - g. elm
  - h. Norway maple
5. Established Woodland
  - a. sugar maple, ash (mixed hardwood)
  - b. red oak, white oak
  - c. hickory
  - d. crack willow
  - e. crack willow/Manitoba maple

LOW  
↑  
COMPLEXITY  
↓  
HIGH

FIG. 22 - VEGETATION COMPLEXITY - RIVER CHANNEL.





#### Categories

0. Derelict Industrial Land
1. Mown Turf  
mown turf with tree canopy
2. Long Grass (or crown vetch)
3. Early Stages of Regeneration
  - a. old field
  - b. floodplain meadow
  - c. cat-tails
  - d. red osier dogwood
  - e. sumac
  - f. aspen, poplar
  - g. ash, cherry
  - h. various shrub masses, mostly horticultural
4. Healthy Regeneration
  - a. willow
  - b. aspen, poplar
  - c. black locust
  - d. Manitoba maple
  - e. maple, ash, oak
  - f. witch-hazel understorey
  - g. elm
  - h. Norway maple
5. Established Woodland
  - a. sugar maple, ash (mixed hardwood)
  - b. red oak, white oak
  - c. hickory
  - d. crack willow
  - e. crack willow/Manitoba maple

LOW  
↑  
— complexity —  
↓  
HIGH

FIG. 23 - VEGETATION COMPLEXITY - PORTLANDS.

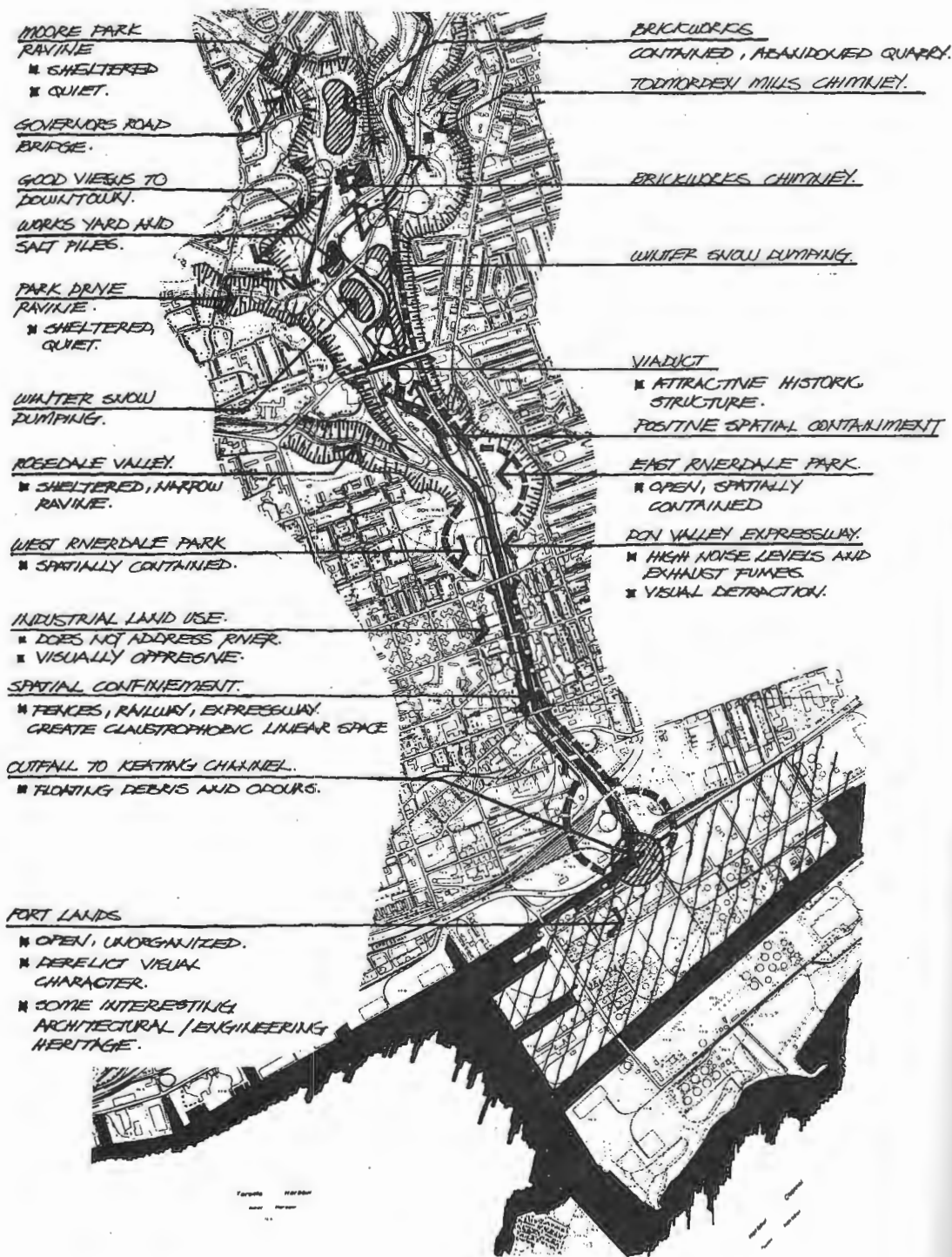


FIG. 24 - SENSORY PERCEPTIONS

- the high level of noise from the expressway up to the east Riverdale Park where one has to shout to be heard and the sudden relative quiet and peace of the valley to the north;
- sighting a kingfisher, heron and kestrel in the upper reaches and ducks taking advantage of the warm water from a sewer outfall;
- the magic of inaccessible and unspoiled areas fortuitously made special by road works (Todmorden Mills oxbow);
- the discovery of unusual plants – Salt marsh sand spurry and Rayless aster;<sup>27</sup>
- the presence of old Black Willow and little regeneration;
- the wooded ravines that recreate a sense of the old tributaries valleys and what Toronto used to be;
- natural regeneration occurring in a variety of places and evidence of how the valley has suffered from neglect;
- the flotsam in the murky waters of the Keating Channel;
- the presence of industrial objects; fences, dumps, PCB storage, tires, oil drums, switching stations, transmission lines, advertising signs with surrounding vegetation cut to maintain their visibility from the expressway;
- the bike path whose design and relationship to its riverside environment needs to be improved. Once complete, it will increase the use of the valley;
- the views from the bridges of the Don Valley, particularly north of the channel section;
- the magnificence of the historic Bloor Street viaduct from the valley itself as it frames vistas beyond;
- the coolness of the valley on a hot summer's day.

Another aspect of the valley experience that cannot be ignored is the drive along the expressway itself. There are pleasant views of the valley for drivers in the lower reaches where the scale of the forested valley walls are dramatic, particularly in the spring and fall. Further down, where the river becomes a channel, the whole experience changes as natural landscape gives way to the industrial landscape of the waterfront.

One of the ironies of the aesthetic experience of the valley as it is today, is its superficiality. The dramatic

views from the car ignore the environmental destruction that made the experience possible. The experience on foot of the valley bottom while pleasant, is a mere shadow of what was there before. These impressions, both negative and positive, are nonetheless the framework of history that has made the valley what it is. The opportunities for rehabilitation are fundamentally linked to this legacy.

## 4.5 Land Use and Policies

### 4.5.1 Land Use and Urban Planning Policy

The Lower Don Valley has never been perceived as a single connected open space in current City of Toronto planning policies. It is seen as an edge to a wide variety of planning districts, not as a place in its own right and worthy of its own policies. The following Part II Official Plan or major planning initiatives are an example (Figure 25):

- Rosedale Part II Plan
- Queen-River Part II Plan
- South Riverdale Part II Plan
- King-Parliament Part II Plan
- Ataratiri Part II Plan (in preparation)
- South of Eastern Part II Plan
- East Bay/Front Part II Plan (in preparation)
- Central Waterfront Plan
- Task Force on the Gardiner/Lake Shore Corridor

The valley is also affected by planning policies adopted by the Municipal Councils of East York, North York, Metropolitan Toronto and many other agencies. For example, the *Metropolitan Toronto Official Plan* contains special environmental management policies for major river valleys, viz:

*"It is the intent of Council to maintain the major river valleys from crest to crest primarily in a natural state, except for compatible recreational uses and essential public works."*<sup>28</sup>

However, the Don Valley is not designated as a major river valley south of Gerrard Street to its mouth. It is the only river system in the metropolitan area which is not protected to its mouth by the Official Plan.

All the secondary land-use plans are focused on the districts adjacent to the Don. They treat the valley as either a recreational resource, or a transportation





*The sweep looms over the bike path*



*Billboards on the Lower Don*



*A mature tree survives – How?*



*It certainly does "Speak for itself"*



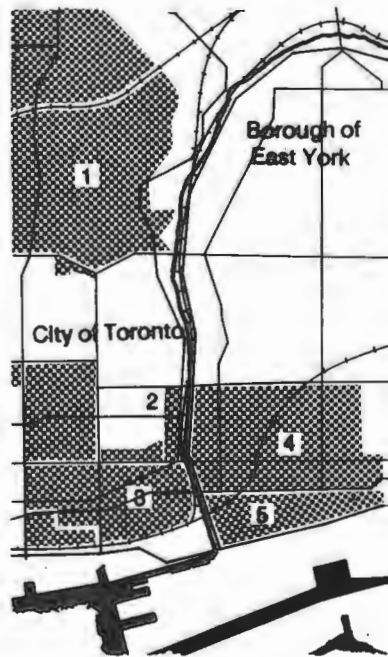
*Keating Channel Yard*



*East Bank – A thing of beauty*

corridor which should be buffered with industrial and high density residential uses. In essence, the current planning policies and land uses *turn their back to the Don*. If the Don Valley is to be planned as a special place, as a "green seam" in the urban fabric (which is a fundamental objective of the Task Force), then planning and urban design policies must be reoriented to focus on the valley as a place worthy of consideration *in its own right*; and with its own planning policies.

Photos by Rodney Smith



**LEGEND**

- 1 ROSEDALE
- 2 QUEEN - RIVER
- 3 KING - PARLIAMENT
- 4 SOUTH RIVERDALE
- 5 SOUTH OF EASTERN

FIG. 25  
PART II PLANS







*The Task Force "on site"*



*The Task Force surmounts all barriers*

Photos by Rollo Myers



*That looks inviting*



*Fenced like animals in an old-fashioned zoo*

The most successful visual connection between the Don Valley and the City are to be found in situations like Riverdale Park, where the public street forms one edge of the valley. Good precedents of this relationship are the Ottawa River Parkway and the "Emerald Necklace" of parks in Boston, designed by Frederick Law Olmsted.

#### 4.5.2 Present Conditions

Current land use in the valley is a legacy of the historic attitudes to the Don that were described on pages 26 to 28 (Figure 26). The valley still contains a wide variety of uses which would undoubtedly be considered undesirable elsewhere in the City, for instance:

- an expressway
- two railways
- an arterial road
- snow dumps
- a prison
- a hospital
- a sewage treatment plant
- heavy industry
- utility rights of way and buildings
- transformer stations
- storage yards and PCB dumps.

From a civic design perspective, the most objectionable result of the present situation is that the valley terminates in an industrial district and no sense of the river estuary remains. South of Gerrard Street, the valley disappears into a transportation corridor and heavy industrial area, with the river flowing as a channelled open sewer.

#### 4.5.3 Keating Channel/Portlands Existing Land Use

Most of the port and adjacent land area is occupied by older light and heavy industrial uses and transportation facilities. Some of the land is vacant, while the rest of it is occupied by uses which are land consumptive. Existing employment densities are much lower than other industrial areas of the City.

Most of the lands north-west of the rail corridor have been expropriated for the Ataritari project. The warehouses and scrapyards on the site should be considered interim uses. The Gooderham and Worts distillery was closed in 1990 and the owners are pursuing mixed use redevelopment. The lands between Lake Shore Boulevard and the rail corridor are largely on public lands, with the rendering plant at 554 Lake Shore Boulevard expropriated and to be closed as part of the Ataritari project.

The former Canon plant at Lake Shore Boulevard and Cherry Street has been demolished and a redevelopment application has been submitted for these lots and the adjacent Victory Soya Mills site and Canada Malting lands.

In contrast, the area north-east of the Gardiner/Don intersection contains stable industrial and residential areas. The South Riverdale neighbourhood occupies most of the blocks between Queen Street East and Eastern Avenue. The area between Eastern and Lake Shore Boulevard is largely industrial. The most important development is Lever Brothers. The former Consumer's Gas property on Eastern Avenue is now occupied by large yards for the City of Toronto Departments of Public Works and Parks and Recreation.

The Port Industrial District covers most of the area south of Lake Shore Boulevard. The Port Industrial District is the largest contiguous industrial area in the City of Toronto (over 400 hectares), representing about 40% of the City's industrial land. It has the lowest employment density in the City of Toronto (5 employees/acre). Its south-west section includes the Port of Toronto and several transportation related facilities and industries. In the south-east are the R.L. Hearn generating station and much vacant land. The lands along Lake Shore Boulevard appear to be turning into a light industrial strip including a Brewers' Retail warehouse, tennis club and park.

#### 4.5.4 Toronto Harbour Commission: *Port Industrial Area Concept Plan*

Developed in 1988, the purpose of the plan was to maintain the integrity and vitality of the port. Its three primary goals were to provide for current and future needs of port users; to strengthen public access to the port; and to foster economic development of the area. While subsequent events will likely involve modification to the THC's mandate in the Harbourlands, the most significant legacy of the Port Concept to current planning in the area has been the proposal for a green open space connection along the Don Roadway south to Cherry Beach and the Outer Harbour, with further links proposed between Cherry Beach Waterfront Park to Tommy Thompson Park. This open space network has become the cornerstone of all subsequent planning proposals for the Portlands area.

#### 4.5.5 Royal Commission on the Future of the Toronto Waterfront Proposals

The Royal Commission's second interim report, *Watershed*, recommended some major changes in managing the East Bayfront/Port Industrial Area that could pave the way for improved ecosystem integrity. Among them:

- consolidation of the Port;
- expansion of waterfront parklands;
- creation of a Don Valley wildlife corridor;
- revitalization of waterfront industry by the Toronto Economic Development Corporation (TEDCO);
- a Centre for Green Enterprise and Industry;
- a Toronto Waterfront Regeneration Land Trust.

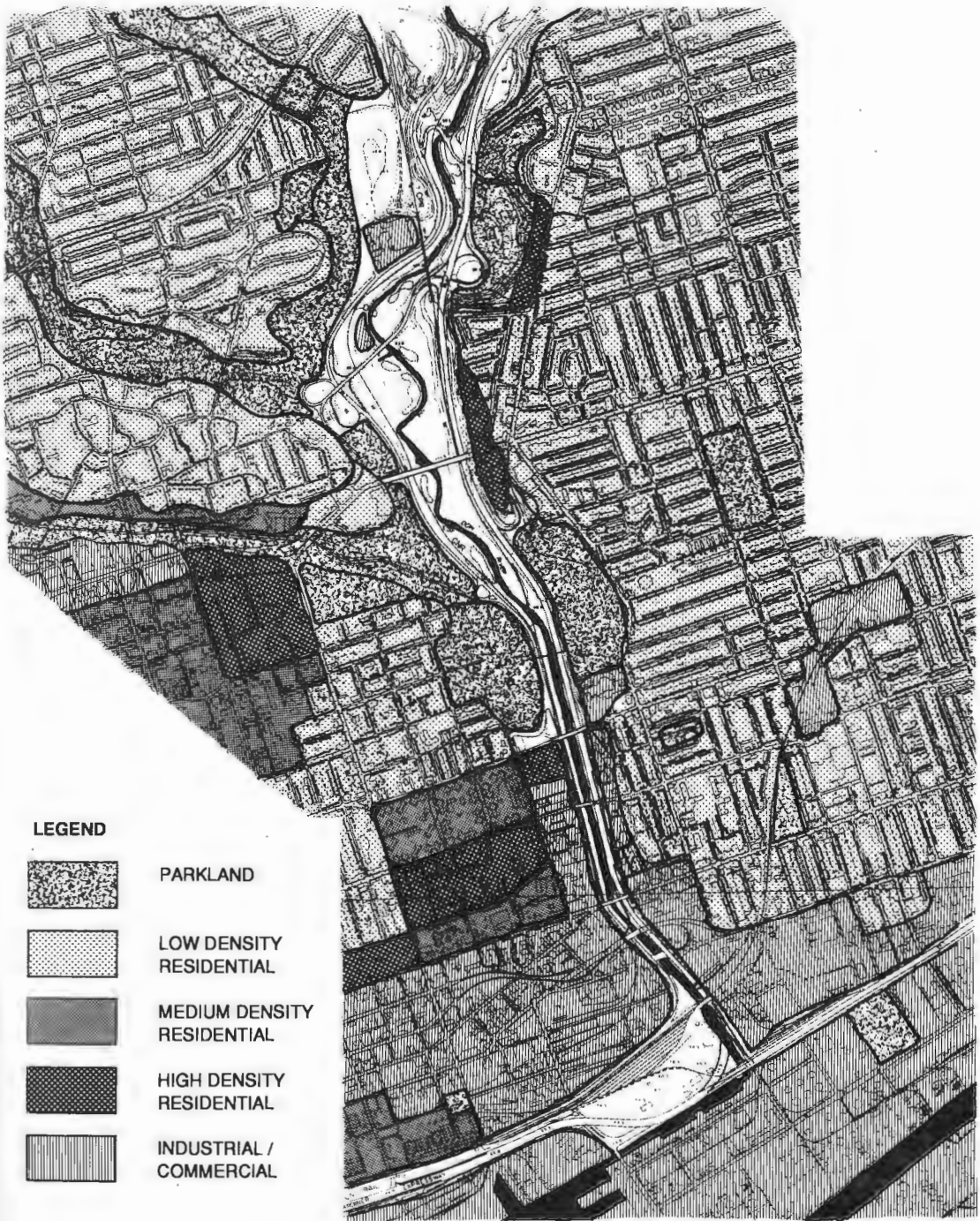
The Commission intends the ecosystem approach to be applied to these initiatives, incorporating and extending the information base developed during the environmental audit. This will necessitate close coordination among the responsible agencies to ensure a comprehensive view of natural, physical, social, cultural and economic systems.

TEDCO was created by the City of Toronto in 1986 and operates under a provincial charter. Its mandate is to create jobs, particularly on under-utilized or surplus City property. Its board is composed of people from the business, labour and public sectors. Although it is fully accountable to the City of Toronto, it enjoys an arm's-length relationship with the municipality. The Royal Commission has recommended and the City of Toronto and the Province have agreed, that TEDCO should develop the lands designated for industry in the East Bayfront/Port Industrial area (Figure 26A).

The proposed Centre for Green Enterprise and Industry would be managed by TEDCO and run by a board comprising representatives from the business, labour, academic and public sectors. Its mandate would be three-fold:

- to carry out research and development on the relationship between the environment and industry and foster business and manufacturing practices and processes that are "environmentally friendly";
- to act as a centre for gathering, analysing and disseminating environmental information;
- to provide environmental education and training to students of community colleges and universities.

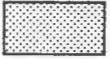




**LEGEND**



PARKLAND



LOW DENSITY  
RESIDENTIAL



MEDIUM DENSITY  
RESIDENTIAL



HIGH DENSITY  
RESIDENTIAL



INDUSTRIAL /  
COMMERCIAL

FIG. 26 - EXISTING LAND USE.



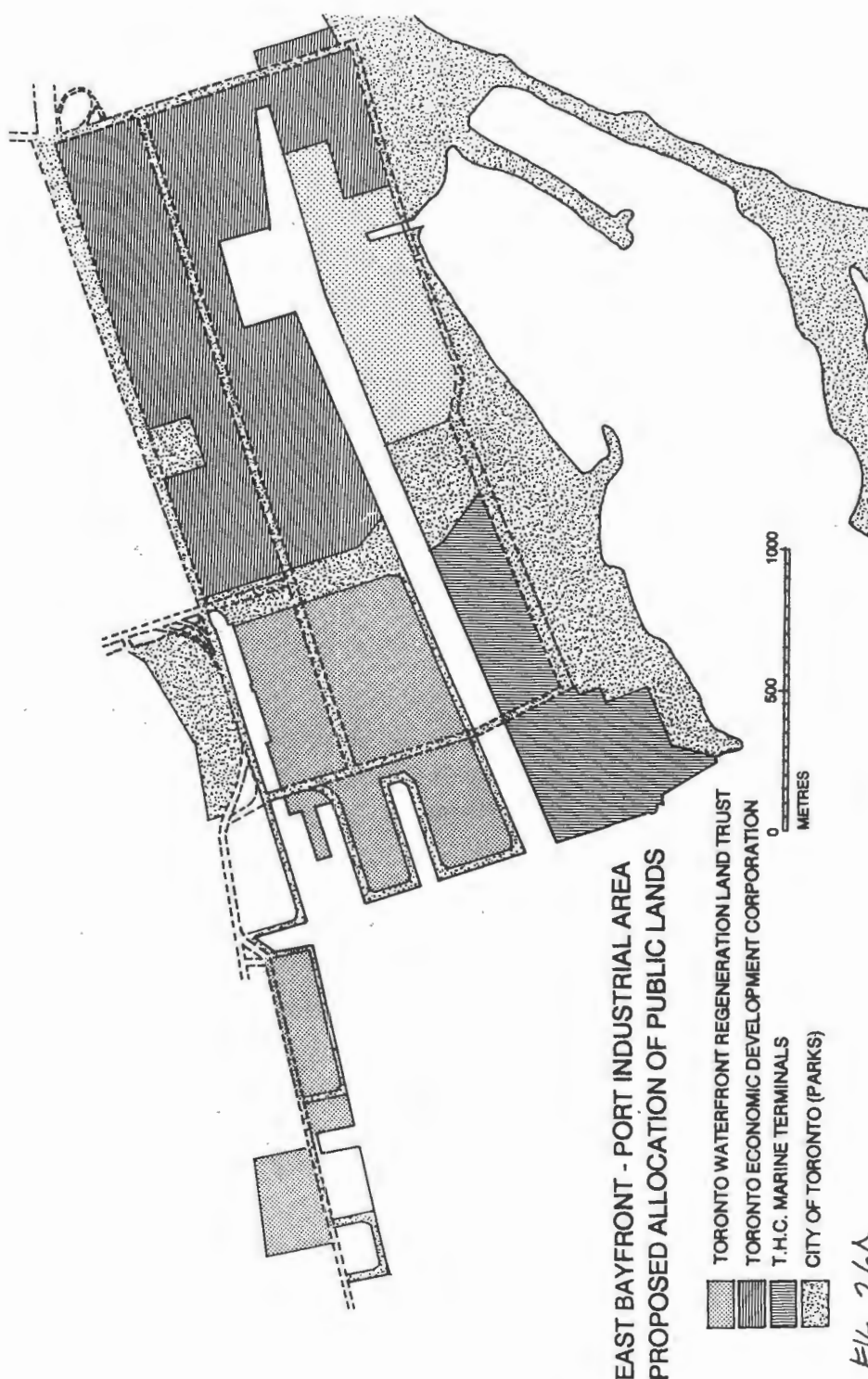


Fig. 26Δ

In response to *Watershed*, the Province of Ontario's Minister of the Environment announced, on December 17, 1990, that the government would establish by legislation a Waterfront Regeneration Land Trust. This non-profit agency will accept lands surplus to port and industrial needs, as well as adjacent provincial lands. The Trust would be subject to all normal City of Toronto planning controls and its board would include appointees from the City, Metropolitan Toronto and the Province. It would be legally accountable to the Province of Ontario. Its mandate would be to:

- complete the environmental audit of the provincially designated area;
- remediate all lands under its ownership and plan for a range of mixed uses.<sup>29</sup>

#### 4.5.6 Gardiner Expressway Corridor Proposals

*The Gardiner Expressway East/Don Valley Civic Design Study* has proposed changes to the area where the Gardiner Expressway, Don Valley Parkway, Don River, Keating Channel, Don Roadway, Lake Shore Boulevard and a railway all intersect. This area contains the most difficult barriers to access within the Gardiner-Lake Shore corridor (Figures 27 and 28).

The overall civic objectives for the study include:

- create a major entry to the City at the easterly limits of the Gardiner/Lake Shore corridor;
- improve the north-south streets crossing through the corridor between the City and the waterfront;
- consolidate parkland and riverfront in the Lower Don Valley through the reconfiguration of various aspects of the Gardiner and Don Valley Parkway and Lake Shore Boulevard;
- improve pedestrian and bicycle connections between adjacent City neighbourhoods and the lakefront;
- coordinate this plan with adjacent areas, specifically the Ataritari plan;
- improve access between Lake Shore Boulevard and the port area and South Riverdale;
- improve open space linkages between the eastern beaches and the downtown;
- respond to the City's Carbon Dioxide emissions goals by providing opportunities for re-education in automobile use and increases in transit, cycling and pedestrian use.

#### Civic Design Strategy

The barrier effect of the Gardiner-Lake Shore Corridor should be mitigated by several initiatives:

- consolidate and extend the Don River Valley open space system south to link up to the waterfront. The new open spaces at the Gardiner/Don Valley connection will improve the entry conditions to the City's central area;
- improve access and provide for more intensive land use by extending the local road network at a smaller interval with north-south streets and an east-west waterfront boulevard;
- provide generous pedestrian and cycling opportunities along the new streets and improve north-south connections under the rail corridor at Parliament and Cherry Streets.

#### Transportation Strategy

The study team concluded that the elevated Gardiner Expressway could be removed east of the Don River in a phased plan implemented over 10-15 years, provided that the transportation network was modified to:

- rebuild Lake Shore Boulevard as a six lane urban boulevard;
- create a continuous new waterfront boulevard by upgrading and connecting Queen's Quay and Commissioners Street;
- extend the Harbourfront LRT east along the new boulevard, to provide additional transit capacity;
- reconfigure the port railway network to avoid conflicts with traffic on Lake Shore Boulevard.

The existing high level Gardiner bridge would be used to carry traffic across the Don River, eliminating the barrier caused by Lake Shore Boulevard between Cherry Street and the Don Roadway.

The study recommends that the high level, sweeping ramp connecting the Don Valley Parkway to the Gardiner be left in place until decisions are made about the future of the downtown portion of the elevated expressway. Previous proposals to relocate the "sweep" to the north would have adverse impacts upon the future Ataritari community.

Removing the Expressway creates the opportunity for more north-south links between Riverdale and the



waterfront. For example, Pape Avenue could be extended from Eastern Avenue to Commissioners Street.

#### 4.5.7 Ataratiri Proposals

The City of Toronto Housing Department is developing a mixed-income, mixed-use community north of the Don rail line. The program for Ataratiri includes 7,300 residential units (60 percent social housing), retail and community facilities and industrial commercial space for 1,500 employees. The proposed site plan places significant parks along the eastern and northern edges of the site. These parks will, however, need linkages across the Don rail line and Don River. Bicycle routes are proposed along Front and Mill Street and along the south edge of the site, with a link to the Don River route.

A Don River park could become a major identifying feature for Ataratiri; an open space that emphasizes its relationships to the river and offers linkages to the north and south. The park would define the easterly edge of the site and fulfill important environmental and social functions. It would extend the floodplain of the Don River: as a reforestation buffer it will act as an environmental air quality filter and, to some extent, buffer noise between housing and the Don Valley Expressway (Figures 29, 30 and 31).

As a continuous open space, the Don River park would make bike and pedestrian connections to sports fields proposed at the edges of Ataratiri and establish links to the river and waterfront at key places (proposed under the CN line at the south-east curve, over the abandoned bridge structure and at the Eastern Avenue flyover). The park could provide a focus of activity and establish a sense of identity for Ataratiri residents.

As proposed in the *Ataratiri Open Space Study*, a combination of dense forested "wilderness", open tree canopy and grassed open space would provide opportunities for a wide variety of uses: nature-oriented adventure play, passive uses and active recreation.

#### 4.5.8 Land Uses North of Queen Street

The edges of the valley between Queen and Dundas Streets are lined with light industry and warehouses. The valley is filled with transportation facilities including Bayview Avenue, the railway, a power line, the

bike path, the river and the Don Valley Expressway. Between Dundas and Gerrard Streets the valley section is still quite constrained, but high density housing has been built along River street.

The nature of the valley changes dramatically north of Gerrard Street. The river begins to have a more natural edge and a wider valley. Adjacent land uses are more public in nature with Riverdale Farm, the Necropolis, Riverdale Park, the Don Jail, Castle Frank, Riverdale Hospital, Rosedale Heights Collegiate and the City Adult Learning Centre. Unfortunately, access from these public lands to the valley is still difficult because of the barriers created by transportation facilities.

The Don Valley is quite wide at the Bloor Street viaduct (Prince Edward viaduct), with lower density residential uses on either side in Rosedale and Riverdale. The valley is now wide enough to contain older uses such as the Metro Transportation Department Yard, salt storage, snow dumps and a transformer station and the sewage treatment plant in East York (STP). The last remaining private industries in the valley, the Don Valley Brickworks, Domtar and Polyresins closed in 1984 and 1990 respectively. These lands are now owned by the MTRCA.

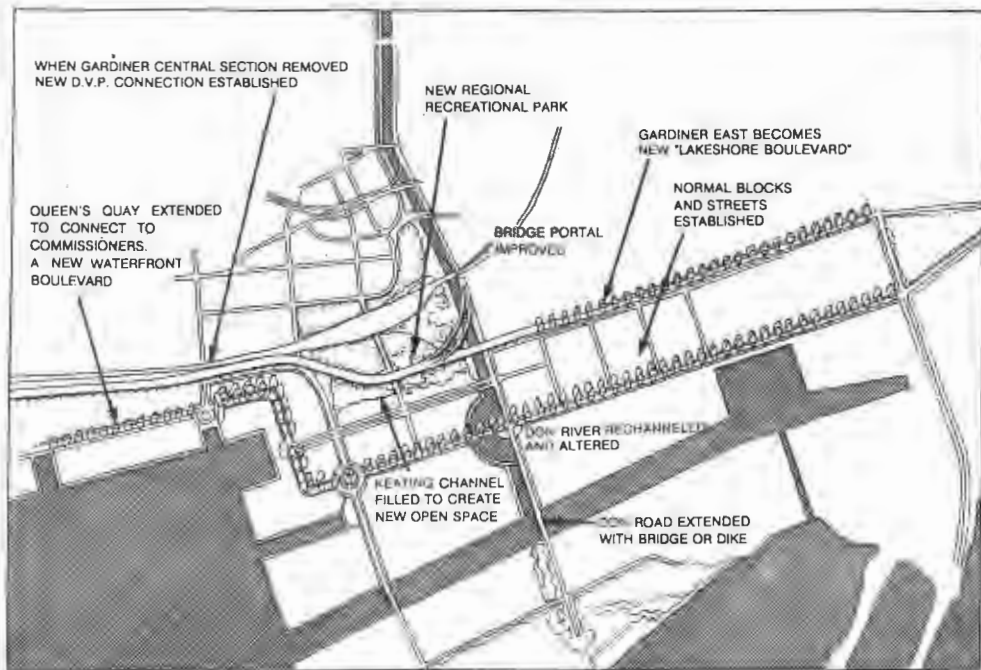
#### 4.5.9 Parks and Open Spaces

Much of the land between Lake Shore Boulevard East and Gerrard Street is unused regenerating land, inaccessible and fragmented between high residential developments, the railway and the Don Valley Expressway. North of Gerrard Street, Riverdale Park to the East and west of the river is devoted to playing fields and a field house and is heavily used by the Riverdale neighbourhood. Built partially on garbage, the park is entirely turfed and, with the exception of a clump of existing trees and some revegetation plots, almost devoid of vegetation. Wellesley Park, Ramsay Park and the Rosedale Valley ravine are linked with Riverdale Park on the west side.

#### 4.5.10 Don Valley Brickworks

The Brickworks site is linked on the west side by pedestrian trail to Moore Park ravine and Chorley Park. Closed in 1984 as a brick making industry, it is now in public ownership. The official plan of East York (January 1983 consolidation) designates the subject lands as Public Open Space.





THE KIRKLAND PARTNERSHIP

FIG. 27 - GARDINER-LAKESHORE TRANSPORTATION STUDY

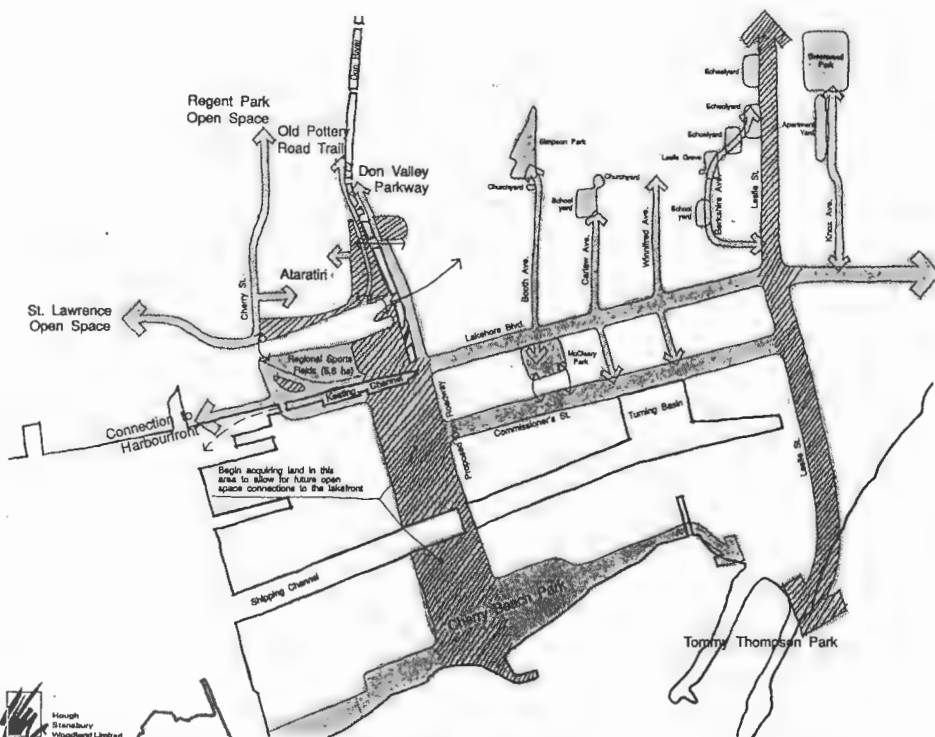
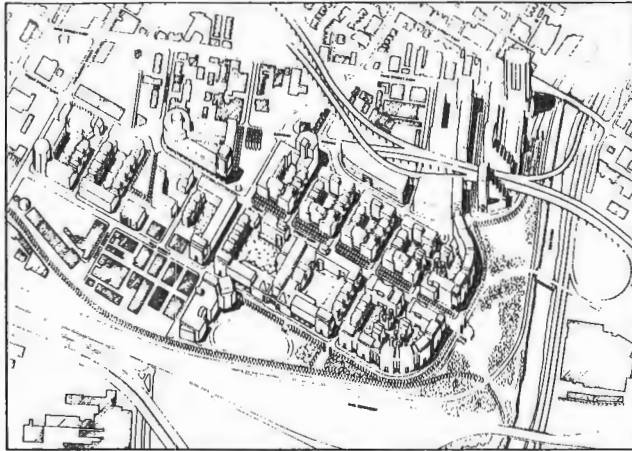


FIG. 28 - GARDINER LAKESHORE OPEN SPACE STRATEGY



CITY OF TORONTO HOUSING DEPARTMENT

THE KIRKLAND PARTNERSHIP

FIG. 29 - AXONOMETRIC - ATARATIRI

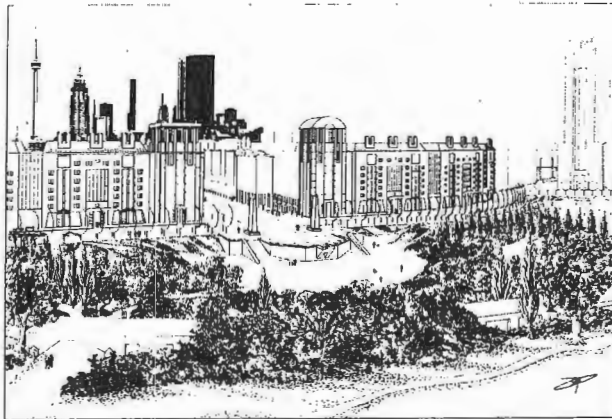


FIG. 30 - PERSPECTIVE - ATARATIRI

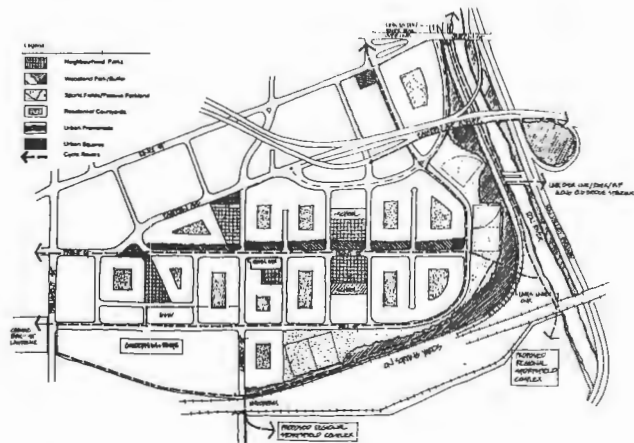


FIG. 31 - ATARATIRI OPEN SPACE STRATEGY

The recent acquisition of the Brickworks now implies the application of the general public Open Space policy stated in Section 6.a: "Ravine lands, other than those in the designated industrial area north-west of O'Connor Drive, will be preserved for the enjoyment of this and future generations..." Other provisions within this designation refer to ensuring public accessibility and safety.

The Official Plan policies are implemented through the Borough of East York Zoning By-law No. 6752 (November, 1988). The Don Valley Brickworks property is classed as "G" zone (refer to Section 11), with permitted uses including those which are incidental and contribute to the operations of the Metropolitan Toronto and Region Conservation Authority (MTRCA), public recreational uses and accessory uses. Permitted buildings and structures are those which are necessary for the operations of the MTRCA and which are incidental and contributory to and compatible with, Public Recreational uses. The Zoning By-law further focuses in on the Brickworks in Section 12.1.1, allowing for the continuation of existing uses and stating limitations on obnoxious uses.

The long-range plan for the Brickworks site envisages educational and recreation uses. The unique attributes of the Brickworks site lie in its physical connections to the entire Don Valley system, the remarkable fossiliferous deposits contained in the North Slope and the extraordinarily significant role the rehabilitated site can play in community efforts to restore the valley to a state of health. This requires a holistic view that integrates issues of reforestation and water quality, natural and industrial heritage and community values. It is this overall perspective that has inspired the plan for the Brickworks site itself. The plan contains some key principles (Figures 32, 33 and 34):

- a future Don Centre that would provide a community focus for the restoration, interpretation and management of the site and the larger Don valley;
- the establishment of links between the site's unique geological significance and industrial brickmaking history and the role of the park as a focus for restoring the degraded watershed ecosystem;
- intensive experiences in the Brickworks complex that focus on geology and palaeobotany, brick making, pottery, demonstration gardens, nature

learning activities for children; farmer's markets and rentable exhibit space for garden clubs, etc. The industrial architecture of the Brickworks presents an image of "garden ruins" that maintain the basic historical forms of the buildings, but which are partially demolished. Some are conceived as open courts incorporating gardens; other have their roofs removed, with the structure remaining as pergola-like structures which incorporate a variety of activity areas that are woven into the overall fabric of buildings. The essential brick making equipment and machinery is intended to be maintained for interpreting industrial history and brick making processes;

- passive learning activities in the quiet natural setting of the quarry that combine education and recreation. This includes the Don Centre that incorporates lecture halls, offices and interpretive exhibits; stormwater purification and demonstration of the Mud Creek; bio-technology; a meadow and natural gardens; a marshland and wildlife habitat; and interpretation of the North Slope. It is proposed that the plan should be implemented in three main phases over fifteen years.

#### 4.5.11 Todmorden Mills

Tucked into a bend of the Don Valley and passed unnoticed every day by thousands of motorists on the Don Valley Expressway, Todmorden Mills is a reminder of a number of stages in Toronto's history.<sup>30</sup> The 26 acre site of Todmorden Mills is owned by MTRCA and managed as a museum site by East York (Figure 35). Since 1967, the village has functioned mainly as an historic site and interpretive centre for cultural and natural history and includes the old brewery building, Terry House, Helliwell House and paper mill. The Don Railway Station that was built in 1899 as part of the beltline railway, was moved to the site in 1969. Visitors include students from both outside and inside East York. In addition to maintained parkland, Todmorden Mills retains a remnant forest, a pond and wetland and is one of the more inaccessible and precious natural features remaining in the lower valley.

#### 4.6 Access

Access to the valley is currently extremely limited and difficult. Problems of access are threefold: access to, across and along the valley.



*Access to the valley* is severely restricted by the barrier effect of north-south transportation corridors at the valley edge. No access to the valley is possible between Lake Shore Boulevard and Gerrard Street. There are several access points to the west edge of the valley north of Gerrard Street, but access to the east is difficult, except at Riverdale Park.

*Access across the valley* is severely restricted by the combination of the railway, roads, expressway and river in a narrow corridor. Pedestrian and bicycle routes can only cross the valley on the existing road bridges:

- Lake Shore Boulevard;
- Eastern Avenue (via a little known ramp access from St. Lawrence Street);
- Queen Street East;
- Dundas Street;
- Gerrard Street East;
- Riverdale Park pedestrian bridge;
- Prince Edward Viaduct (Bloor/Danforth).

The Lake Shore and Bloor crossings are uncomfortable for pedestrians and cyclists and the Eastern Avenue crossing is particularly inhospitable due to the high speeds of traffic on the bridge. There are no opportunities to enter the valley from these east-west bridges. There are no valley crossings at grade between Lake Shore Boulevard and Pottery Road a distance of some 8 kilometres.

*Access along the valley* is extremely difficult at the present time. Entrances and exits for the transportation corridors present formidable barriers. The patchwork of property ownerships in the valley has led to jurisdictional disputes. The railway and Don Valley expressway corridors, which hamper east-west accessibility, do not permit pedestrian or bicycle traffic. Bayview Avenue is a hostile environment for pedestrians and cyclists and does not extend south of Front Street. There is no continuous north-south street on the valley's east slopes, although some access is possible from Broadview Avenue.

The only continuous route along the valley is the Don Valley Bikeway that links the Martin Goodman Trail along the waterfront with the bike path leading north from Pottery Road. The bikeway was difficult to de-

velop due to issues of ownership and obstacles in the valley. The bikeway is highly restricted by fencing along much of its route, which separates it from the railway and expressway and which inhibits connections to adjacent City neighbourhoods. There are also no access points between Cherry Street and Gerrard Street. This situation makes the trail unattractive for all but the most determined pedestrians/bikers. Thus, it is less than ideal from the point of view of public safety, particularly since there are no alternative pathways for people on foot.

North of the Brickworks, the valley provides important connections to points of interest beyond the study area (Figure 36). These include:

- Flemington Park, the Science Centre and Sunnybrook Park that link into the West Don River;
- Thorncliffe Park with access at Millwood Drive and the CPR line;
- East York with access at Beechwood and Pottery Road;
- Moore Park/Governor's Bridge (Bennington Heights); Rosedale that has access from the Moore Park ravine; Park Drive Reservation (extending to Yonge Street); and Rosedale Valley Road. Moore Park ravine also extends north to Mount Pleasant Cemetery and connects with the old Beltline railway (now designated as a linear walkway by the City of Toronto) and Forest Hill;
- Cabbagetown with access from Riverdale Farm.

## 4.7 Jurisdictions

The lands surrounding the valley are within both the City of Toronto and the Borough of East York. Between the Lake Shore and Pottery Road, the City and Borough exercise control over local planning issues such as land use, local streets and local parks. The valley is also under the jurisdiction of Metropolitan Toronto, which regulates metropolitan arterial roads, expressways and regional parkland. The Metropolitan Toronto and Region Conservation Authority regulates all development in the river floodplain and valley walls.

Land ownership in the Don Valley includes a mix of ownership patterns, most of them in the public domain (Figures 37 to 39). As a general pattern, lands north of Riverdale Park are under Metropolitan

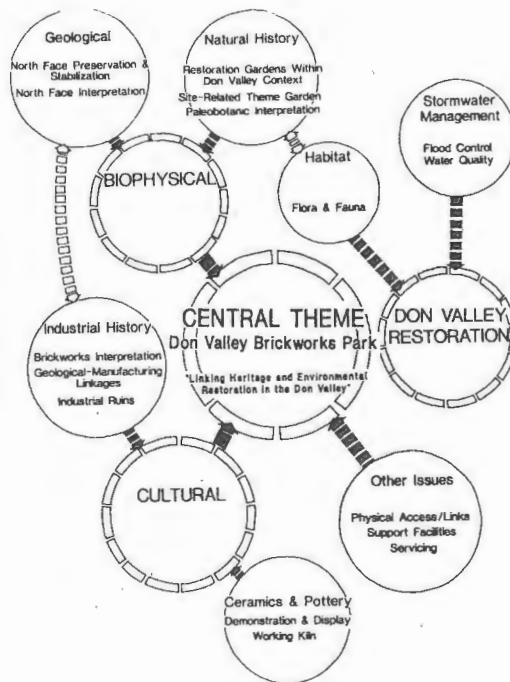


FIG 32 - BRICKWORKS THEMATIC PROGRAM

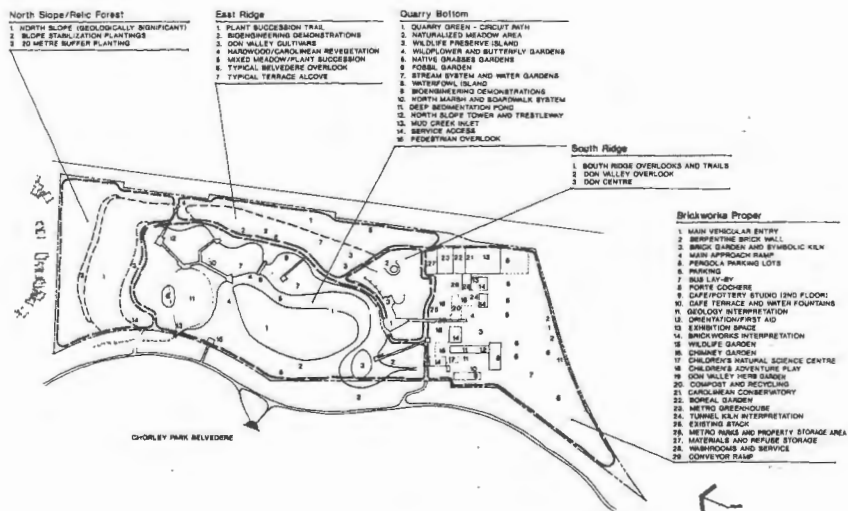


FIG. 33 - BRICKWORKS SITE PROGRAM

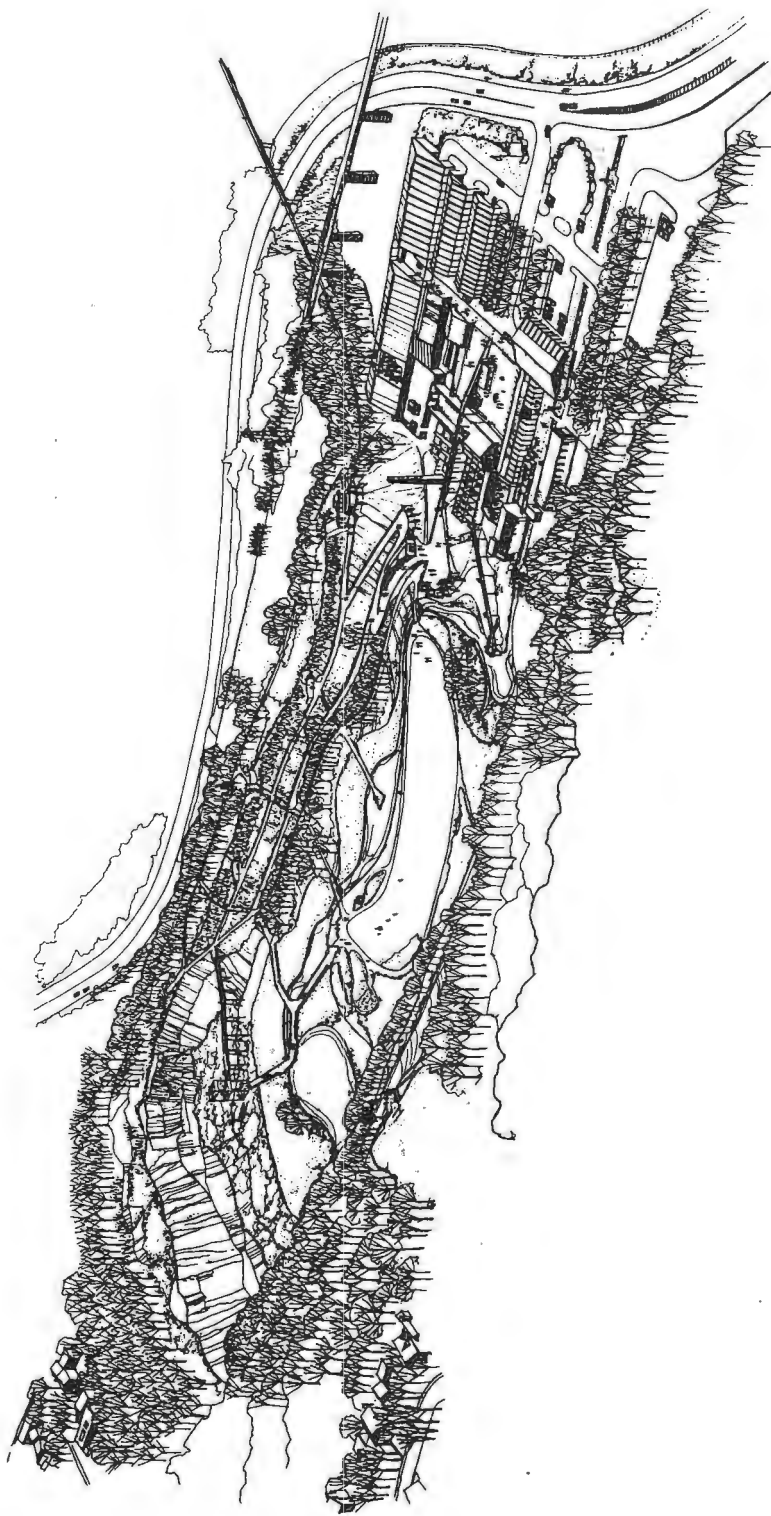


FIG. 34 BRICKWORKS PERSPECTIVE



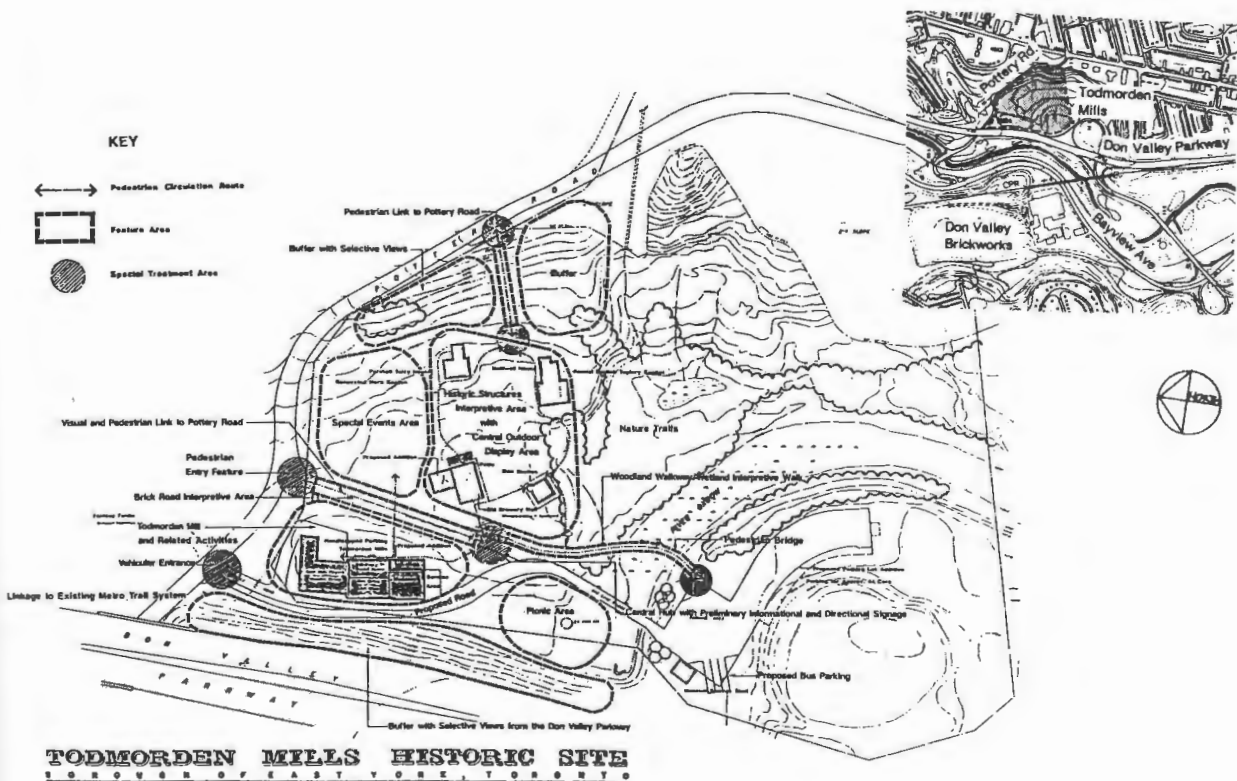


FIG. 35 - TODMORDEN MILLS MASTER PLAN.

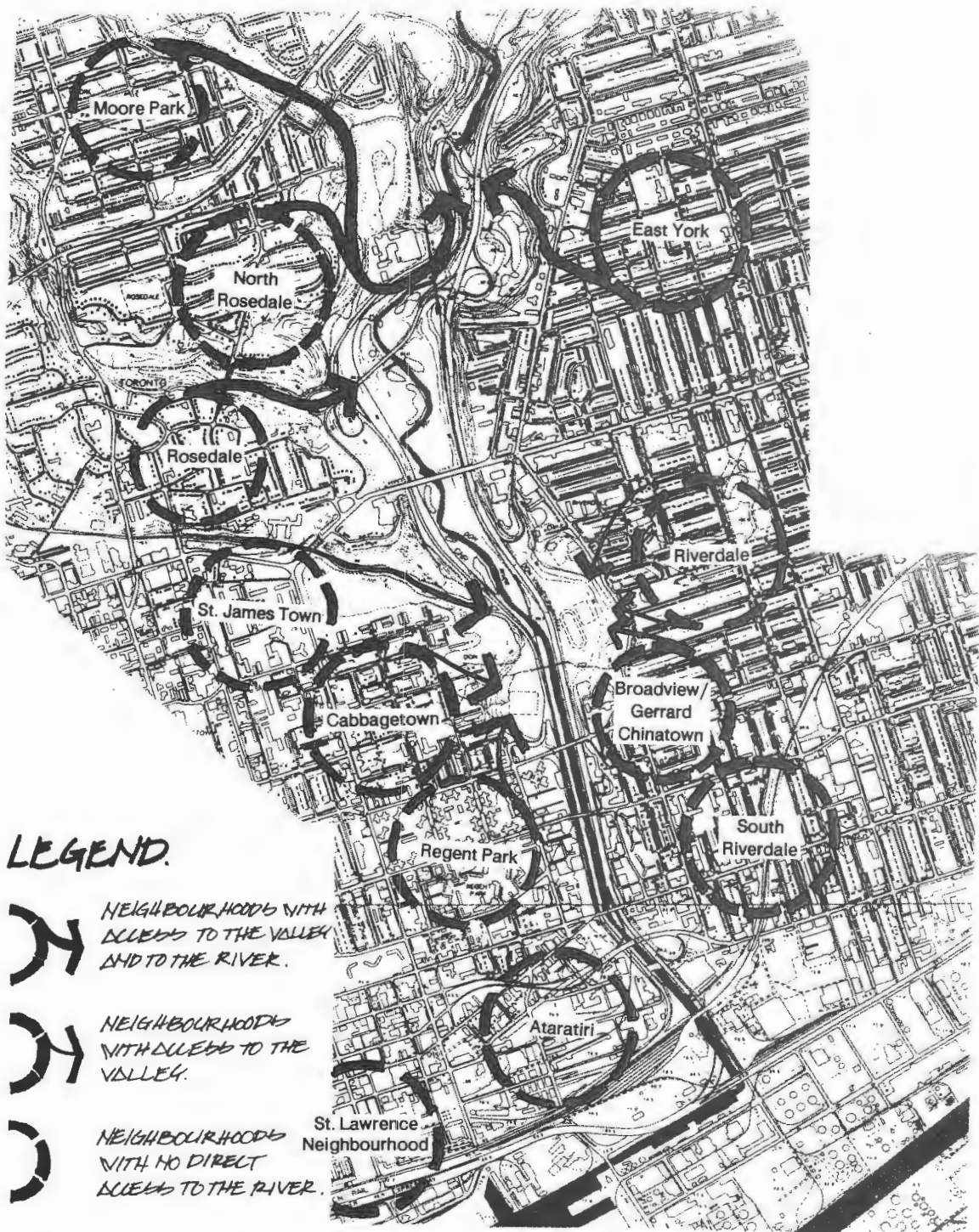


FIG. 56 - NEIGHBOURHOODS AND VALLEY ACCESS

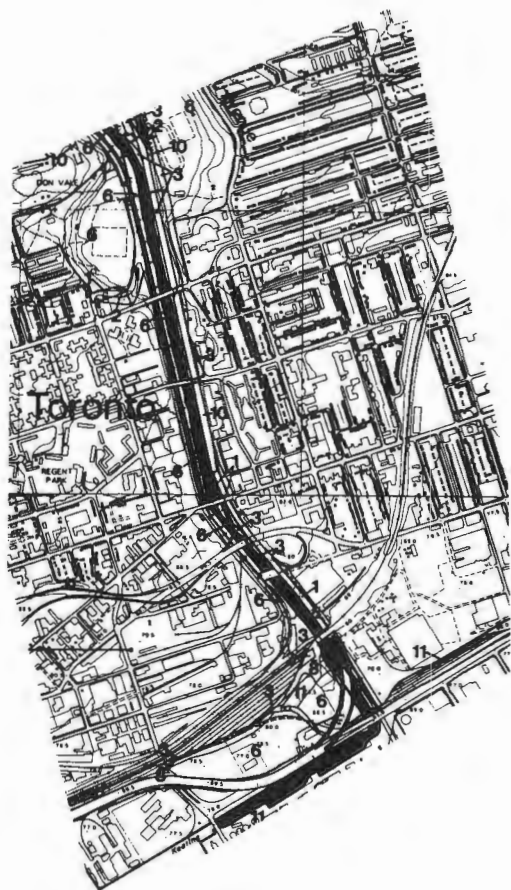


#### LEGEND

- ① OWNED BY METROPOLITAN TORONTO
- ② TO BE ACQUIRED FROM CITY OF TORONTO BY METRO
- ③ TO BE DEDICATED BY CITY OF TORONTO AND ASSUMED BY METRO
- ④ DEDICATED FOR PUBLIC USE BY BY-LAW
- ⑤ OWNED BY MTRCA/MANAGED BY METRO
- ⑥ CITY OF TORONTO
- ⑦ RAILWAY LANDS
- ⑧ HYDRO
- ⑨ DON VALLEY PARKWAY DEDICATED
- ⑩ UTILITY RIGHT OF WAY
- ⑪ TORONTO HARBOUR COMMISSION

FIG. 31 - LAND OWNERSHIP - ROXBOROUGH FLOODPLAIN AREA

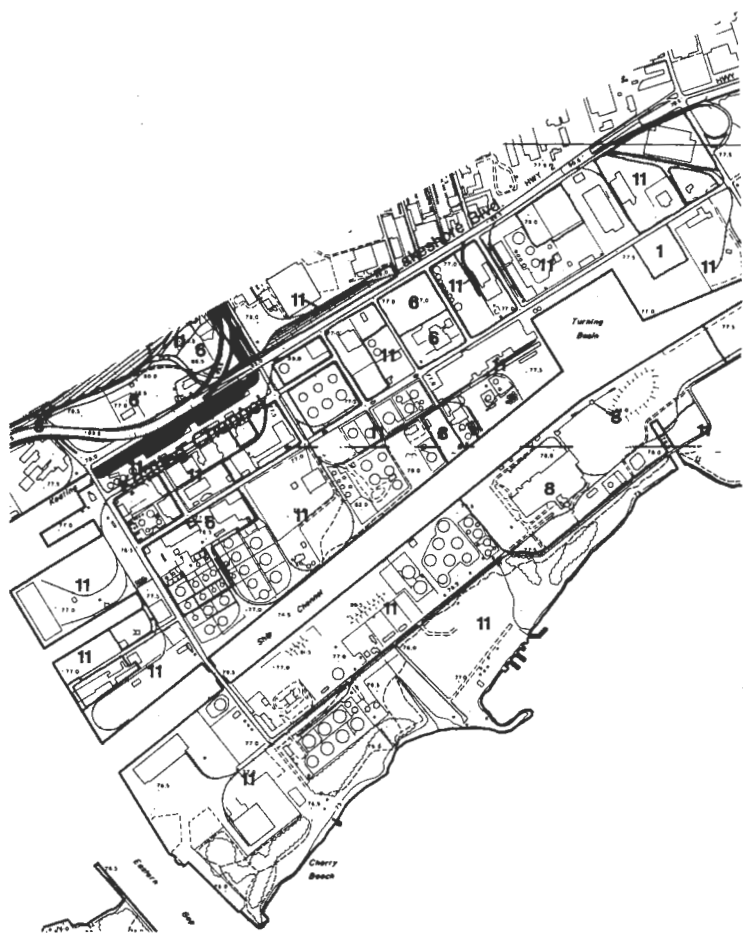




# LEGEND

- 1 OWNED BY METROPOLITAN TORONTO
- 2 TO BE ACQUIRED FROM CITY OF TORONTO BY METRO
- 3 TO BE DEDICATED BY CITY OF TORONTO AND ASSUMED BY METRO
- 4 DEDICATED FOR PUBLIC USE BY BY-LAW
- 5 OWNED BY MTRCA/MANAGED BY METRO
- 6 CITY OF TORONTO
- 7 RAILWAY LANDS
- 8 HYDRO
- 9 DON VALLEY PARKWAY DEDICATED
- 10 UTILITY RIGHT OF WAY
- 11 TORONTO HARBOUR COMMISSION

FIG. 38 - LAND OWNERSHIP - RIVER CHANNEL.



#### LEGEND

- 1 OWNED BY METROPOLITAN TORONTO
- 2 TO BE ACQUIRED FROM CITY OF TORONTO BY METRO
- 3 TO BE DEDICATED BY CITY OF TORONTO AND ASSUMED BY METRO
- 4 DEDICATED FOR PUBLIC USE BY BY-LAW
- 5 OWNED BY MTRCA/MANAGED BY METRO
- 6 CITY OF TORONTO
- 7 RAILWAY LANDS
- 8 HYDRO
- 9 DON VALLEY PARKWAY DEDICATED
- 10 UTILITY RIGHT OF WAY
- 11 TORONTO HARBOUR COMMISSION

FIG. 39 - LAND OWNERSHIP - PORTLANDS.





Toronto jurisdiction, lands south of Riverdale are controlled by the City of Toronto and the Portlands are under the control of the Toronto Harbour Commission, MTRCA and private interests. They include:

- lands owned by the MTRCA which generally controls lands up to the crest of the valley slopes. Most of these are located north of the Brickworks;
- public property throughout the valley including ownership by Metro Toronto and CN railway;
- quasi-public property (cemeteries, hospitals, CP rail, etc.) found largely in the southerly part of the study area;
- private property, including residential neighbourhoods on the table lands back from the valley crest and the Domtar valley property north of the Brickworks site;
- port lands owned by the Toronto Harbour Commission.

The significance of the land ownership pattern lies in the fact that the vast majority of lands within the valley and ravine systems is publicly owned, which permits public access to the Brickworks site and allows multi-jurisdictional involvement where capital works and programming cross property lines. Unfortunately, the multiple jurisdictions within the overall public ownership can lead to serious impediments to change in the valley. Even where urban land is in the ownership of one level of government, there can be land-use disputes within the organization based on the different roles assumed for the valley. Transportation and utility corridors versus natural open space are an example. Under the current fragmented ownership patterns, strong resistance to change to the status quo can be expected by public agencies that continue to pursue their perceived mandates. This situation completely conflicts with the ecosystem planning of the valley.



## Section 2 – Potential Strategies for Restoration

### 5 Introduction

The first part of this study has described what the valley was, what it is now and the problems and issues that have evolved from over a century and a half of interference that has severely compromised its integrity. The task of Section 2 is to examine potential strategies for the valley's restoration and to identify the opportunities for and constraints against, various courses of action in the light of the Task Force's fundamental mission to bring nature back to the Don. The City of Toronto's commitment to improve water quality through the gradual removal of Combined Sewer Outfalls (CSO) is a first essential engineering step in achieving this goal. Another is the access stairway from the Riverdale Bridge into the valley that has been realized as of August 1991 through inter-jurisdictional and inter-agency coordination and cooperation. The third step is to build on these initiatives and begin the process of restoring life systems to the river and its valley.

It should be noted that these strategies are fundamental to achieving the Task Force's goals and are, therefore, the preferred ways of achieving them. Hydrologically, the evolutionary history of the land left an almost zero gradient in the lower reach of the Don. Under natural conditions, this reach accumulated sediments in its final meanders to the lake and an estuary was formed. Subsequent channelization of the Don, constrictions to its banks from urbanization and transportation systems, altered these natural processes (see Figure 9). In order to prevent sedimentation for continuing to build up and to prevent major flooding of the floodplain that would naturally occur, dredging of the Keating Channel is currently seen as a perpetual and costly requirement.

Of the options considered, that ranged from dramatic engineering responses to the preferred solution to increase flows and eliminate dredging, the most practical, least "engineered", visually obtrusive and least costly option was the preferred strategy described in Sections 2 and 3. In addition, this preferred strategy also provided the greatest potential for environmental and recreational benefits in habitat creation and water quality enhancement. Within the scope of the broad objectives recommended here, a series of al-

ternative options have been examined and are included on page 55.

#### 5.1 Objectives of Lower Don Restoration

The key objectives for restoring the Lower Don include the following.

*Enhancement of the river mouth.* The river has been cut off from the lake biologically and physically for most of this century. Urbanization and industrial development have destroyed its original estuary and productive wetland habitat, rendering the area ecologically sterile, polluted and recreationally unusable.

*Creation of aquatic habitats.* 19th and 20th century development destroyed most of the aquatic habitats of the Lower Don, including the vast wetlands of Ashbridges Bay and the river meanders that were channelized in the late 19th century. Wetlands are the most productive and diverse of all natural communities and perform vital functions in the enhancement of water quality and in stabilizing extremes of stream flow.

*Restoration of terrestrial habitats.* Much of the original vegetation that provided bottom-land habitat and stabilized valley walls has disappeared as a consequence of industrialization and the development of the valley as a transportation corridor. The restoration of native vegetation and the long-term return of indigenous forests in the valley and degraded ravines is, therefore, of fundamental importance.

*Appropriate uses of the valley.* The fundamental goal of the Task Force is to restore the valley to a state of ecological and physical health and rich sensory experiences. Human uses that are appropriate to this goal, therefore, should be encouraged and inappropriate ones discouraged, or, where possible in the long-term, relocated.

*Improving access to the valley.* Physical links to the Lower Don from neighbourhoods and from the mouth have virtually been cut off by the Don Valley Expressway, railways, fences and private land uses. The existing bikeway is shared by pedestrians and has

only one entry/exit point between the Portlands and Pottery Road. The pathway is thus physically dangerous and psychologically unsafe. Enhancing access must be, therefore, a primary objective. The first step in achieving this objective was realized August 1991.

*Coordinating planning policy for the valley* The City currently turns its back on a river that is avoided by most people. This objective aims to re-establish a sense of place for the valley and reconnect it to the fabric of the city that surrounds it.

## 5.2 Objective 1 – Enhancement of the River Mouth: Delta and Marsh

The natural tendency for the Lower Don to fill with sediments that are carried down from the river basin. These sediments are currently removed from the Keating Channel to protect the channel and adjoining development areas from flooding. To re-establish the mouth of the Don river, therefore, will require that dredging operations be discontinued to allow the natural delta-building processes in the lower valley to be accommodated at the mouth. Thus, over time, a delta and productive marsh habitat can be re-created, once again linking the river biologically and physically with Lake Ontario. This will require some manipulation of the Lower Don channel and the dedication of a portion of the harbourlands as a sedimentation basin and marsh.

### 5.2.1 Preferred Strategies

Since the gradient of the Don is almost zero (0.03 percent) from Pottery Road to the inner harbour, three main components to a restoration strategy are required.

- a) "Don Delta/Portlands Marsh Area". An area of approximately 50 hectares (125 acres) would be confined in a ring dyke by roads, jetty walls and berms in the northwest quadrant of the harbourlands between the Keating Channel and the ship channel for the formation of the Don River delta. As sediments accumulate (50,000 to 100,000 cubic metres per year), local dredging may be used to direct the lower river into several channels, create ponds and build new access trails and landfills. The present rate of sediment delivery would add 15 centimetres per year to 70 percent of the confined area. At this rate and with upstream sediment reduction and deposition, the marsh would require several decades to accumu-

late. The form of the delta could contain a number of islands in either formal or natural configurations. The west edge of the confined area would remain as developable land, with interior island building continuing over time using deposits dredged from new outlet channels to the harbour.

- b) Creation of a flushing channel contained between jetty walls and berms with access trails between the Rosedale headpond and the harbour along the presently channelized reach. A preliminary estimate of the gradient required to flush sediments into the delta at high flows is 0.17 percent. The slope of the channel bottom would be constructed as naturally spaced pools and riffles to permit fish to swim up the Don without impediment.
- c) Construction of a 3 metre headpond (at approximately 80m above sea level) above the Riverdale Park reach extending to just south of the Don Valley Brickworks site – an area of approximately 26 hectares (55 acres). This includes a fixed crest weir to create the "Rosedale Marshes Area" and to provide the extra slope required to flush sediments through the lower man-made channel to the "Don Delta/Portlands Marsh Area". In the Rosedale marshes area, ponds and access trails similar to those on the Rouge and Humber rivers may be constructed by local dredging as sediments accumulate in the temporary reservoir. A central meandering channel may be maintained periodically by dredging and directing the flow with earth banks and berms. The elevations and dyking required for this redevelopment of the Lower Don will require further engineering studies similar to those recently undertaken for the flood level predictions for Ataratiri.

### 5.2.2 Opportunities for Realizing Objective 1 Physical/Biological

The re-creation of a delta/marsh has several desirable features:

- hydrologically the location of the delta is as close as possible to the outfall of the river, allowing delta-forming process to develop;
- annual dredging of the Keating Channel is greatly reduced and barging costs are avoided. (The total cost to the federal government, THC and MTRCA is estimated to be \$500,000-\$600,000 per year);<sup>1</sup>
- wetlands offer primary breeding and forage for



many aquatic organisms, fish and waterfowl. The Don Delta/Portlands Marsh would create a major new aquatic habitat along the Toronto waterfront. It would function to strengthen linkages to other historic wetlands (Toronto Islands, Humber and Rouge Rivers and the recently created Tommy Thompson Park [Leslie Street Spit]);

- natural marsh conditions can absorb some contaminants now polluting the inner harbour;
- migratory birds and butterflies would benefit from the proposed marsh. The status of the original Ashbridges Bay marsh, as one of the largest migration assembly points on Lake Ontario's north shore, would to some extent be re-established.

#### Open Space/Recreation

The area is currently devoid of publicly accessible landscape. Recreational uses of the estuary increases opportunities for pedestrian and bicycle connections to the waterfront, bird watching and photography, viewing, walking, picnicking and other passive uses in a downtown lakeside natural setting.

The re-established marsh will further reconnect people to the lake and provide great educational opportunities for interpreting natural systems and ecological restoration in an urban environment.

#### Land Use

The proposed marsh/open space is located on a portion of the lands proposed by the Crombie Commission as a Toronto Waterfront Regeneration Land Trust for "green" industries (see policy below).

Jurisdictions with planning control over these lands agree that they should be used for industry with some supporting commercial and public open space.

The creation of a major open space as a focus for a revitalized industrial area has the potential to increase the quality of and create an appropriate setting for, new waterfront development.

Improved water quality and restored fish and wildlife habitat are significant and necessary conditions for a revitalized waterfront.

#### Policy

The Royal Commission on the Future of the Toronto Waterfront has recommended that the federal government should enact amendments to the *Toronto Harbour Commissioners Act, 1911*, necessary to consolidate all THC marine terminal activities on approximately 40 hectares of land, comprising MLT 51/52 and adjoining lands on the south side of the ship channel.<sup>2</sup> The mandate for the Toronto Waterfront Regeneration Land Trust would be to provide for a range of mixed uses, all in a park-like setting of mixed uses and to co-ordinate the regeneration of contaminated lands along the Greater Toronto Waterfront.<sup>3</sup> The City of Toronto, Metro Toronto and the provincial and federal governments have endorsed the interim report of the Crombie Commission on the future of the waterfront.

While not currently governmental policy, the *Gardiner Expressway East and Don Valley Sweep Civic Design Study*, commissioned by the City of Toronto's Gardiner-Lake Shore Task Force, proposes filling the Keating Channel to permit the connection of Queen's Quay to Commissioner's Street.<sup>4</sup> This proposal is consistent with the Delta/Marsh restoration proposal.

#### 5.2.3 Constraints Against Realizing Objective 1

##### Physical/Biological Impediments

The Delta/Marsh will require extensive engineering modelling and design to test and further develop the feasibility of this strategy.

The possible impact of the Delta/Marsh on flooding patterns and upstream land uses such as Ataratiri, will need to be examined through engineering modelling.

Until the patterns of deposition are established, comprehensive annual maintenance will be required.

The creation of a Delta/Marsh will involve disturbance to contaminated soils and groundwater in many areas of the Portlands in former and current industrial locations. Some 26 locations have been identified where inorganic contaminants exceed the Ministry of the Environment's decommissioning guidelines for industrial and commercial use.<sup>5</sup> In addition, bottom sediments in the Keating and Ship Channels, the Inner and Outer Harbours and Ashbridges Bay exceed provincial Open Water Disposal Guidelines for at least seven parameters. The issue of contaminants and the clean-up and disposal of dredgeate will have to be

addressed under any redevelopment scenario for the Portlands. Much, however, remains to be understood on the impact of various pollutants on aquatic and terrestrial food chains, as well as on future development uses and appropriate methods of remediation.

Access to the river from the lake by fish will require study.

#### Land Use/Planning Impediments

Jurisdictions with planning control over these lands have not resolved who should control them. The creation of a delta/marsh on a significant portion of the Portlands may be perceived as a development opportunity cost. However, as previously noted, a major open space as a focus for development also provides major incentives for a transfer of densities, higher land values and high quality development.

There has been much discussion on the future use of this area, but the various jurisdictions exercising planning control agree that it should be used for industry, with some supporting uses and that open space, pedestrian and bicycle connections to the waterfront must be improved. The Toronto Harbour Commission's *Port Industrial Area Concept Plan* proposes land uses that include an industrial park for recycling industries and bulk storage in the potential marsh area. The City of Toronto Official Plan has designated the area as General Industry and Heavy Industry, while the zoning bylaw 438-86 designates the lands as I2, I3, I4 and IC.

### 5.3 Objective 2 – Creation of Aquatic Habitat (Rosedale Marshes)

In the valley bottom, the creation of wetland habitat is primarily related to the re-establishment of the river with the Rosedale Marshes and the Don Delta/Portlands Marsh Area. Some stream channels may be re-established in the tributary ravines using the natural dimensions and features that are in scale with their pre-development tributary drainage area. The channels may be represented by a series of narrow impoundments where fresh water inflows are limited, or they may be flowing channels re-connected to surface stormwater runoff.

#### 5.3.1 Preferred Strategy

Strategies for pond and wetland creation involve a diversity of aquatic species that include wet meadow, emergent and submergent plants, as well as areas of

open water to create maximum diversity of habitat and also include:

- a) *Ravine stream channel restoration sites.*  
Channel dimensions, meanders, rapids, etc., may be based upon the tributary drainage area to the local ravines;
- b) *Construction of upstream wet ponds.* The dominant source of pollution loadings during storms are the discharges from storm sewers directly to the river. Combined with future action by the City on improving water quality by separating sanitary cross connections from storm sewers, wet storage ponds will be the most effective and economical option for reducing concentrations of major pollutants in the Lower Don;<sup>6</sup>
- c) *Creation of fish habitat by establishing marshes and aquatic vegetation.* They should be associated with re-established vegetation cover. The food chain for fish species is enhanced and the uptake of pollutants by vegetation is increased;
- d) *Reducing the amount of water entering catchbasins* in urban areas above the valley during wet weather by infiltrating surface water into the ground. Techniques may involve methods such as infiltration trenches, groundwater recharge systems, porous bottom catchbasins, porous paving, soak-away pits. Taken together, strategies B and C would reduce concentrations of suspended solids, total phosphorus, copper and lead.<sup>7</sup>

Other related strategies include:

- detecting cross-connections between sanitary and storm sewers (currently under study by the City of Toronto);
- enforcing erosion and sedimentation control practices for urban construction sites in the upper reaches of the river;
- promotion of public education programs to reduce contaminants/chemicals entering the storm sewer systems.

While the effectiveness of wet ponds under dry weather conditions has not been well documented, it is likely that they would be beneficial in reducing concentrations of pollutants from stormwater outlets into the Don river.

### 5.3.2 Opportunities for Realizing Objective 2

#### Physical/Biological

Habitat creation is a direct consequence of Objectives 1 and 2. Creation of ponds and wetlands add low-cost water quality enhancement to City water-quality initiatives in the Lower Don – an important citizen concern. Wetlands in the Rosedale reach of the Don will directly enhance river hydrology, with potential to increase base flows by storing water during periods of flood and releasing it during periods of dry weather. Some ravine tributary streams have potential for hydrological and vegetation restoration, in association with local community groups.

It should be noted that wetlands are extremely important to fish because of their productivity and for the habitat they provide. Even fish species that do not directly use wetlands benefit from them. Studies show that changes in fish communities in the Long Point marshes due to habitat fragmentation and evolution affected the fish community of Lake Erie as a whole.

Some game fish also spawn in wetlands: yellow perch, largemouth bass, northern pike, muskellunge. Others such as walleye may use them as nursery habitat. Since wetlands tend to attract game fish, this makes wetlands attractive areas for angling. Their habitat type is now lost and should be replaced to allow for the renewal of species such as pike and bass which once were present in the Lower Don.

#### Policy

The Ministry of Natural Resources' wetland policy encourages the *enhancement* of wetland habitats as well as their protection.

#### Jurisdictional

Proposed wetland habitat is on public land.

### 5.3.3 Constraints Against Realizing Objective 2

#### Physical/Biological

A high level of water quality for a warm water fishery within the river and for the river delta in the inner harbour, will depend on the development of similar ponds, wetland construction, infiltration measures and related strategies *within the entire watershed*. For instance, calculations have shown that to treat runoff from areas which have already been developed within the watershed, roughly 200 wet ponds would be required.<sup>8</sup> These would, on average, drain an area

of about 1.2 sq.km. and would have a total surface area of approximately six hectares. The surface area of each facility would be between 0.2-0.5 percent of the drainage area. On average, each pond would serve 6-8 sewersheds.<sup>9</sup>

The North Toronto Sewage Treatment Plant (above the Lower Don) is a contributor of phosphorus, chlorine and metals to the river. During wet and dry weather conditions total concentrations are four times target value.<sup>10</sup>

Upgrading of the Sewage Treatment Plant to provide nitrification, dechlorination and effluent filtration would reduce discharges of contaminants in the Don River. Alternatively, phasing out of the North Toronto Sewage Treatment Plant would redirect the effluent from the Don altogether, although it would tend to reduce base flow in the river. The use of wet ponds and wetlands, however, would mitigate any such effects through temporary storage and reduced rates of release of runoff water.

Other bio-physical factors constraining realization of this objective include:

- salt pollution from the expressway;
- impact of snow dump, Metro Transportation Department yard;
- hydrology flash peaks and lows in the flow conditions of the river.

#### Policy/Jurisdictional

Conflicts between MTRCA, Metro and City jurisdictions will require resolution prior to the implementation of wetlands and stream restoration projects.

95 percent of water pollution problems emanate from sources north of the Lower Don and are, therefore, beyond the City of Toronto's control. This fact focuses attention on the need to include the entire watershed in resolving water quality problems.

### 5.4 Objective 3 – Restoration of Terrestrial Habitats

Revegetation of the valley with woodland and meadow species is one of the most pressing and visible needs of the valley's restoration strategies which include the following.



#### 5.4.1 Preferred Woodland Strategies

Replanting all valley slopes, bottom lands and vacant or isolated lands within the Lower Don to native woodland over time by:

- natural regeneration where vigorous regeneration is already occurring and where a seed source is available;
- active planting programs where regeneration requires assistance, i.e., in areas of mown turf or in areas where regeneration poor or not occurring, using principles of managed succession;
- the involvement of citizen groups, school groups and various environmental organizations in the ongoing development of planting programs;
- professional (contracted) planting programs over large, and/or difficult sites.

#### 5.4.2 Opportunities for Realizing Objective 3

##### Physical/Biological/Jurisdictional

Sites with the greatest potential include those that:

- are readily accessible from a road or wide pathway for materials, planting and maintenance crews;
- have relatively undisturbed soils;
- are reasonable flat or gently sloping and safe from traffic;
- are under the control of the City of Toronto, or other sympathetic agency.

#### 5.4.3 Constraints Against Realizing Objective 3

##### Physical and Biological

These include landfill areas where:

- soil depths and/or conditions that would require considerable upgrading (associated with parts of Riverdale Park);
- the snow dump associated with the Metro Transportation Department yard;
- areas directly associated with the Don Valley Expressway that receive winter salt spray from road cleaning;
- extremely steep and inaccessible slopes and landfill areas created by Expressway construction;
- potential soil and groundwater contamination from long-term railway operations in the valley;
- lands taken up by the railway that will reduce the size and effectiveness of habitat creation.

##### Jurisdictional Impediments

Lands belonging to Metro and East York that would require negotiation with respect to:

- planting programs, access and maintenance;
- City parks such as Riverdale Park that have long been used by local neighbourhoods for a variety of active recreational purposes;
- hydro power lines that restrict vegetation and require access under the right-of-way.

#### 5.5 Objective 4 – Appropriate Uses of Valleylands

A major consequence of habitat restoration in the Lower Don is the opportunities for diverse and appropriate recreational and related uses of the valleylands that this strategy provides.

##### 5.5.1 Potential Strategies

Development of recreational and educational facilities that a) take advantage of the diversity of habitats created through previously outlined restoration strategies and b) integrate future projects in the Lower Don (i.e., waterfront regeneration, Gardiner Sweep, Ataratiri, Don Valley Brickworks). They include:

- creation of linked spaces, bicycle route, pedestrian pathways and boardwalks that link the waterfront and the ravine systems further north (Rosedale Valley, Park Drive Reservation ravine, Moore Park);
- creation of picnic sites and rest areas in the Rosedale Marshes and delta/marsh areas of the Lower Don;
- observation points for bird watching, wildlife viewing and interpretation;
- potential for community or allotment gardening;
- interpretive facilities for school groups and the public on the restoration processes underway;
- focusing attention on interpreting and understanding the valley as a natural system (proposed in the Don Valley Brickworks Master Plan, i.e., geological and bio-physical research and study centre, butterfly and aquatic gardens, water quality enhancement demonstrations etc.);
- creation of open space links along the channelized section of the Lower Don on both sides that continues the initiative of Ataratiri up to the ravine system. The acquisition of existing buildings for open space over time will help focus new development



towards the river rather than away from it and thus stimulate an enhanced river environment;

- providing a focus for passive uses of the channelized section of the Lower Don that includes sitting, viewing, fishing, walking, cycling;
- buffering highly productive and sensitive habitats from negative human influences, i.e., marshes, animal sanctuaries, key migratory bird nesting and cover areas;
- reflecting the principle that the river valley is a land use in its own right, not a conduit for services and infrastructure, i.e., prohibiting noxious, inappropriate, or incompatible uses such as:
  - salt piles and snow dumps;
  - landfilling and dumps;
  - utility lines (overhead and buried), transformer stations;
  - billboards and large-scale electronic signs;
  - recreational uses which are out of character with the intrinsic character of the valley.

#### 5.5.2 Opportunities for Realizing Objective 4 Physical/Biological

Proposed activities are relatively inexpensive to develop. Some of the natural areas north of Riverdale Park are relatively intact, i.e., stretches of Park Drive Reservation, Moore Park ravine, various parts of the valley walls, Todmorden Mills natural area, etc. These should be maintained and enhanced as primarily wildlife areas. Human interaction would be encouraged, but only to the extent that their integrity is not compromised by use. The basic structure of the channelized west bank of the river is reminiscent of urban canal edges. It could, with some creative configuration, become a human-scale linear space, with parallel pedestrian and bicycle paths, treed alley, seating and interpretive nodes.

#### Jurisdictional

The lands from Riverdale Park south are within the City of Toronto and present no jurisdictional problems with respect to their recreational development.

Riverdale Park is already an established neighbourhood City of Toronto park. Potential exists for coordinating and enhancing recreation activities with environmental restoration, i.e., reforestation of the banks

while maintaining toboggan slides, major views to the river, screening out undesirable views (and some noise) of the Don Valley Expressway; working with neighbourhood groups and the City of Toronto Parks and Recreation Department in reforestation programs.

#### 5.5.3 Constraints Against Realizing Objective 4 Physical/Biological

The Metro Transportation Department maintenance yards south of Pottery Road maintain the Don Valley Expressway. The hydro corridor, towers, electrical substations, fenced storage areas for hydro equipment, gas and oil rights-of-way, garbage dumps, etc., are inappropriate uses of the valley and contribute to poor environmental quality and sense of place in the lower reaches of the valley. In the short term, these uses will be difficult if not impossible to remove or to relocate. Ways of reducing their impact should be studied, recognizing their functions as part of the City's infrastructure.

#### Jurisdictional Impediments

There are direct conflicts between the mandates of MTRCA and the Metro Transportation Department within the valley; MTRCA's role being to protect the valley floodplain from inappropriate land uses and filling; Metro Transportation Department's role being the maintenance of the Expressway which requires a revised site and salt dumps for its operations. Ontario Hydro's control over its hydro facilities will inhibit their removal. Recreation facilities such as the bike path, passive recreation, interpretive programs, etc., will require collaboration between Metro Parks and the City of Toronto, particularly with respect to resolving possible conflicts of development agendas.

#### 5.6 Objective 5 – Improving Access to the Valley

Access to the Lower Don valley is extremely difficult for cyclists and pedestrians. Once the cyclist has found his way onto the bikeway from the Lake Shore, the Riverdale footbridge or from Pottery Road, fences prohibit further access from adjoining neighbourhoods and contribute to a real and perceived lack of safety. In addition, the present bikeway is currently the only pathway up the valley and the confinement of space denies a separate route for pedestrians, creating conflicts between cyclists and walkers.

### 5.6.1 Potential Strategies

These include:

- improvement of access to and along the valley;
- provision of separate routes for cyclists and walkers;
- moving fences to widen cycle/footpaths along lower constructed sections of the river.

### 5.6.2 Opportunities for Realizing Objective 5 Physical/Biological

The Gardiner Expressway East and Don Valley Sweep Civic Design Study proposes:

- a connection between Queen's Quay to Commissioners Street as a four lane boulevard and LRT line;
- a major greenway/open space corridor extension along the Don Roadway south to a Cherry Beach Park.

These proposals for improving linkages between the valley and the lake will greatly enhance access from the Martin Goodman Trail to the Don Valley bikeway; and from Tommy Thompson Park to an extended Cherry Beach Park. In addition, they reflect proposals by the Toronto Harbour Commission and the Crombie Commission's recommendations for the long-range development of the Harbourlands.

The site plan for Ataratiri proposes an underpass to the valley where the main CN/CP-GO train line curves north up the valley.

Other potential opportunities for improving access include:

- construction of stairs and possibly ramps to the valley at the Eastern Avenue, Queen Street, Dundas Street, Gerrard Street and Danforth Avenue Bridges; the pedestrian bridge linking the east and west sides of Riverdale park (to be implemented in 1991). Access from Castle Frank/Cabbagetown and East Riverdale would be greatly improved;
- development of the existing vehicle (service) access to the valley at the Expressway interchange (east side) north of Danforth Avenue;
- pedestrian bridge access to the valley and Leaside from the Don Valley Brickworks (proposed in the *Don Valley Brickworks Master Plan*);

- at grade crossing at the Moore Park ravine;
- potential at-grade crossings (Bayview Avenue Extension and CN/CP line) at the traffic lights at the Rosedale Valley/Bayview Avenue intersection and River Street/Bayview Avenue. This may be possible since the section of line between Eastern Avenue and Winchester Street is under lease from the City of Toronto;
- potential for new access along the valley on berms and dykes associated with the re-establishment of the Don Delta, the flushing channel and Rosedale Marshes.

### 5.6.3 Impediments to Realizing Objective 5

#### Physical

Constricted space along the lower sections of the river bikeway from fences inhibit stairs and ramps from existing bridge structures. It also inhibits construction of a separate pedestrian path.

Fences along the west side of the CN line to just north of the Danforth Bridge inhibit connections to the valley at grade.

#### Land Use

Access from the south across the Keating Channel is severely constrained by private land uses, rail lines and traffic arteries and will require implementation of various planning proposals.

#### Jurisdictional

At-grade access across the CN/CP line is subject to negotiations between CN/CP and the City of Toronto.

Bridge connections to the valley will depend on agreements between City and Metro Roads Departments and the Borough of East York.

### 5.7 Objective 6 – Coordinating Planning Policy for the Valley

Planning policy for the Lower Don valley currently consists of a patchwork quilt of land use and environmental regulations from various local, metropolitan, regional and provincial agencies. The City of Toronto's detailed policies are found in several Part II plans whose edges abut the valley. Metropolitan valley protection policies do not cover the area south of Gerrard Street to the river's mouth. Finally, implementation of environmentally sound planning policies

is difficult because land ownership is fragmented among a variety of public agencies. A coordinated policy for the valley is, therefore, a key element in its future restoration.

#### 5.7.1 Potential Strategies

- a) The Lower Don river valley is a distinct place in the City and should have its own planning area and Part II Official Plan consolidating all City of Toronto policies for the valley. The City should also investigate the use of improvement programs as defined by *The Planning Act, 1983*.
- b) Metropolitan Toronto should designate the entire Don river valley as a Major River Valley on Figure 11 of the Metropolitan Official Plan. Metropolitan Toronto is currently preparing a new Official Plan. As part of the Official Plan review process, designation of the entire Don River Valley within its jurisdiction has been recommended. In addition, the new Official Plan will identify expanded environmental policies for the Valley. This will be complemented by the draft waterfront plan, currently in the process of preparation.
- c) Consideration should be given to consolidated land management in the Don valley in the hands of a regional public agency with a long-term mandate to restore its lands, creating natural habitats and enhancing access.
- d) Coordinated planning should be a basic political and bureaucratic objective.

#### 5.7.2 Opportunities for Realizing Objective 6

The Part II Plan appears to be appropriate use of existing planning instruments to coordinate City policy. It would also incorporate consultation with surrounding areas and affected agencies through a standard planning process. The City of Toronto is currently reviewing the Central Area Plan, which abuts most of the Lower Don valley. The *Cityplan '91 Proposals Report* recommended launching a Part II Plan for this area. The Royal Commission on the Future of the Toronto Waterfront is reviewing the major river valleys, including the Don. The Interim Report of the Commission (*Watershed*) recommends an ecosystem approach that is totally compatible with the approach of this study.

#### 5.7.3 Constraints Against Coordinated Planning Policies

Metropolitan Toronto and the City of Toronto may have different objectives for the valley. Existing transportation and utility operators will likely wish to continue to own their land, for purposes of control. They could be granted long-term leases to operate critical public facilities, provided that the lands remain in that use. Similarly, the activities could be granted "non-conforming use" status within environmentally sensitive area zoning.

These objectives are measured against biophysical, physical, policy and jurisdictional factors that could facilitate or hinder valley restoration and become the tools for realistic implementation strategies.

## 6 Alternative Options Within the Conceptual Strategy

The following are potential options within the preferred strategy. These are important since they reinforce: a) the fact that the vision is subject to detailed technical analysis in future phases; b) that there is flexibility in the details of the overall vision; and c) that the timing associated with implementation is also flexible, allowing the vision to be adopted to changing circumstances and further study of associated issues.

### 6.1 Objective 1 – Creation of a Don Delta Portlands Marsh

The creation of the Delta/Marsh is based on two basic elements: a) the weir; b) an increased gradient in the Flushing Channel.

*Three Metre Headpond and Weir.* While the 3 metre weir is central to the estuary concept, alternatives include:

1. a gradual increase in the height of the weir;

#### Pros

This option will allow headpond conditions to be evaluated over time with respect to siltation, plant and habitat development, stream behaviour and management, development of recreation facilities and related conditions.



## Cons

For the weir to function hydrologically it should be constructed up to its final proposed grade at the beginning, to achieve the required difference in elevation between the Rosedale Marshes and the Delta under flood conditions. In addition, the impact of gradual changes to the required height to the banks of the flushing channel could be more costly and disrupting to recreation uses in this landscape unit. However, at the present average rate of sedimentation delivery to the Lower Don, the Rosedale Marshes Area will fill with sediments in three years. Thus an increase in the height of the weir over a three year period would be possible.

2. materials could include boulders, limestone blocks, gabion baskets, or in situ concrete, depending on more detailed study of appropriate design and integration into the landscape.

*Flushing Channel.* Alternative options for the design of the Flushing Channel include:

1. a gradual increase in gradient of containment berms or jetty walls over time consistent with increases in weir height;

Pros and Cons: see previous notes.

2. permitting the bottom slope of the Channel to meet a new gradient through siltation over time;
3. construction of a straight Channel gradient in one phase with no pools and riffles using boulders, gabion baskets, or other appropriate materials;

Pros and Cons (ii and iii): the bottom slope of the Channel will form a slope over time on its own at no cost. However, the Channel would be highly unstable and erode following flood conditions. Similarly, under option iii, the Channel would, over time, develop pool and riffles on its own.

*Don Delta/Portlands Marsh Area.* The fundamental requirement for the location of the Delta is that it be as close as possible to the outlet of the river at the Keating Channel to maximize the proposed Channel gradient of 0.17 percent and permit delta building processes to occur. Thus, options for locating the

marsh in other locations such as Cherry Beach were eliminated from consideration at an early stage of the study. In addition, the proposed size of the Delta/Marsh was based less on hydrological requirements for a given delta forming period, than on those lands that had the least constraints with respect to ownership and possible competing uses. Thus, the preferred alternative 1 (50 ha) could take decades to fill (20-30 years), whereas alternative 2 (68 ha) would take more time and alternative 3 (38 ha) less time to fill. Within the range of feasible choices, therefore, there are 3 options (Figure 39A).

## 1. Preferred Option

Once the delta has filled its area alternative strategies might include:

- resuming dredging operations;
- allowing the delta to grow beyond the confines of its containment walls into adjacent areas of the inner harbour. Since such an option is decades away and will depend on numerous priorities and conditions that are unknown, it is highly speculative.

## 2. Option 2

This option expands the Delta/Marsh area north of the Keating Channel.

### Pros

- the additional lands between the railway tracks and the Keating Channel are City owned minimizing constraints of ownership;
- the delta would take longer to fill.

### Cons

- potential land use conflicts. Lands between the rail tracks and the Keating Channel have been proposed as a site for various uses including regional recreational facilities;
- less land overall is available for industrial uses.

## 3. Option 3

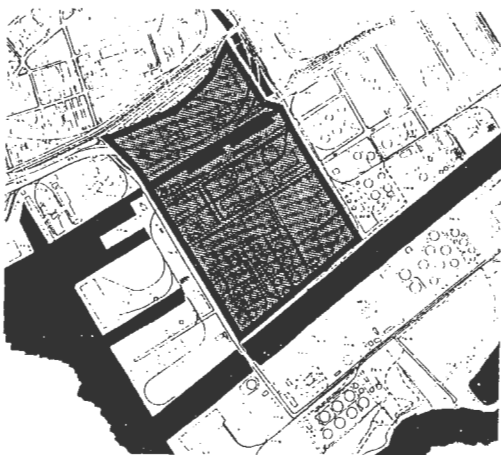
This option uses the lands between the railway tracks and Commissioners Road for the Delta/Marsh.



RECOMMENDED ALTERNATIVE 1



ALTERNATIVE 2



ALTERNATIVE 3



FIG 39A ALTERNATIVE PORTLANDS DELTA LOCATIONS



#### Pros

- the Delta/Marsh is located somewhat closer to the original river mouth;
- the lands north of the Keating Channel are designated open space;
- there are fewer conflicts with private interest (i.e., south of Commissioners Road);
- there is greater opportunity for industrial development south of Commissioners Road.

#### Cons

- the area is the smallest of the three options (38 ha) and will reduce the time the delta would take to fill;
- there are potential conflicts with the use of these public lands.

### 6.2 Objective 2 – Creation of Aquatic Habitat (Rosedale Marshes Area)

Alternative (non-wetland) options for this area include:

1. maintaining the bottom lands as meadow;

#### Pros

- there is greater flexibility for the development of future uses;
- greater use could be made of area for a variety of recreational facilities;
- large open areas (as in present conditions) have a greater sense of safety;
- significant open bodies of water may create hazards for the public, in particular children.

#### Cons

- aquatic habitats are highly productive ecosystems and create essential habitat conditions for fish, birds and mammals. A focus on recreation activities at the expense of ecological diversity is counter to the Task Force's basic goals.
2. reforestation of the bottom lands with appropriate species such as Manitoba maple and willow;

#### Pros

- bottom land forests, often in association with wetland habitat are typical of more northerly

reaches of the Don as well as local rivers in general. They perform important ecological functions in storing water, maintaining cool river and stream temperatures and providing wildlife habitat. Forested bottom lands are, therefore, an appropriate restoration strategy;

- they do not exclude the creation of small wetland areas that may be carried out by community groups.

#### Cons

- forested bottom lands may limit recreation opportunities;
- dense woods may create a feeling of lack of safety.

### 6.3 Objective 3 – Restoration of Terrestrial Habitats

See Objective 2.

### 6.4 Objective 4 – Appropriate Uses of Valleylands

Alternative uses beyond the preferred option for passive recreation include:

#### Rosedale Marshes Area

- outdoor general activity area;
- sports fields for football, picnicking, baseball, soccer;
- tennis courts;
- recreation building;
- maintenance infrastructure;
- lighting for active recreation facilities;
- parking.

#### Channelized River area

- manicured landscape character;
- lighting along pathways;
- toilets, drinking fountains and related infrastructure.

Beyond these options and the preferred alternative, the uses of the valley should defer to the proposed Part II Planning exercise.





## Section 3 – Restoring Sense of Place: A Vision for the Lower Don

### 7 Introduction

Restoring the Lower Don is based on a number of interrelated courses of action that will re-establish the Don valley's health and diversity. They include restoring the hydrological and biological attributes that gave life to the river in the first place; removing the conflicts and pollution problems that inhibit and degrade its qualities as a natural system in the implementation phases; reinforcing the contrasts between places within the valley and between the valley and its surrounding communities; and bringing the river and its valley back to the city, so that it may again be treasured and experienced as a valued and essential part of urban life. Section 3 links the issues identified in Section 1 and the analysis of objectives in Section 2 and suggests a vision for the Lower Don that will re-establish its identity and sense of place.

#### 7.1 A Strategy for the Lower Don: Identifying Landscape Units

A walk up the Lower Don from the harbour to Pottery Road reveals three clearly defined landscape types or units, each being intimately connected to the whole:

- the lower reaches – the Don Valley Sweep elevated expressway, Portlands and Keating Channel;
- the channelized river between the Keating Channel and Riverdale Park;
- the Rosedale floodplain between Riverdale Park and Pottery Road.

Each have an inherently distinct natural character derived in part from the river's hydrological history and ecology and in part from the degradation inflicted on the Don by human changes over the last 150 years. The components of the strategy are based on the varying character and problems associated with these landscape types (Figure 40).

##### 7.1.1 The Don Delta/Portlands Marsh

A major open space that forms a new delta and wetland habitat from river sediments deposited at the mouth of the Don – the physical and biological link between the river and the lake; a recreational and education open space for a wide range of passive activities (walking, picnicking, sitting, viewing, bird

watching, interpretation of natural systems and restoration, photography); biological research related to marshlands and water purification – consistent with the objectives of the Toronto Waterfront Regeneration Land Trust; the focus for high quality and higher employment commercial and industrial "Green Industries".

##### 7.1.2 The River Channel

A straight connection that has replaced the river's original natural path; a semi-formal character determined by extensive tree planting along its banks, walking, jogging and bicycle pathways, stopping places and gazebos for sitting, fishing and socializing. Extended open spaces along its west bank form an important link with Riverdale and new development on the west and east sides of the Don. They include Ataritari and future development to the north that will be able to address the river rather than turning their backs to it.

##### 7.1.3 The Rosedale Marshes

A series of small marshes, dykes, walks, covered focal points and open spaces that support a wide range of habitats and passive recreational activities. There are direct links to the ravine system and to the Rosedale and Bennington Heights neighbourhoods and East York. The area's essential character lies in the breadth and scale of the floodplain, which is the first sense of a valley one receives travelling from the south.

Each of these landscape types are described in more detail below in relation to their hydrology, biology, open space and recreation.

#### 7.2 Summary of Hydrological Concepts

The overall vision for restoring habitat and open space potential in the Lower Don is dependent on modifying the hydrology of the river using natural principles of river behaviour. It should also be noted that the three components of the restoration strategy – the Delta/Marsh, the Channelized river and the Rosedale Marshes – are closely interrelated. In order to achieve the fundamental objective of establishing a

Delta/Marsh at the mouth of the Don, modifications to the other two components are essential. The concept also has implications on other aspects of the Lower Don such as flooding, water aeration and fish habitat. The hydrological concepts can, therefore, be summarized in three key points.

*The Flushing Channel and Flooding.* By raising the banks of the flushing channel and increasing its gradient and depth, the flood capacity of the main channel of the Lower Don from the Rosedale Weir to the harbour is *increased* rather than decreased. This does not decrease the floodplain capacity for extreme floods from what it is now. It simply means that more average-size floods will be contained in the channel.

On balance, the reduction in flooding downstream is offset by the flooding that takes place upstream in the Rosedale headpond behind the weir that is required to create the elevation needed for the higher gradient.

The presence of low-flow pools and riffles (rapids) proposed for the bottom of the flushing channel increased the resistance of the channel by only a small amount at high flows. The loss in channel capacity (about 5 percent in channelized streams with artificial riffles), is compensated for by increased channel stability, aeration of low flows and ease of fish passage.

*The Flushing Channel and Sedimentation.* The lower channel has so little gradient that if the present dredging was stopped, sediments would be deposited above the harbour in the valley. This would increase flooding. To ensure that this does not happen, the gradient of the channel has to be increased to increase the ability of the water to transport sediments from the Don basin through the lower reach.

The increased gradient section has been called a "flushing channel" to distinguish it from the presently aggraded (filled with sediment) low-gradient channel. The increased gradient required to flush the sediments through the lower reach of 0.17 percent was determined by finding the first reach of the Don upstream from the lower reach that does not aggrade and estimating its gradient from MTRCA flood maps. This occurs in the river in the reach between the Brickworks and Park Drive. The channel in this reach has shallow pools and low rocky riffles and has an average gradient of 0.17 percent. When a flood oc-

curs, the flow through the reach is presently capable of flushing sediments from upstream into the reach below. The width, average gradient, pools and riffles were taken as a conceptual template for the redesigned lower flushing reach.

*Creating the Don Delta.* At the end of the flushing channel, the Don enters the low-gradient Keating Channel and low-lying harbourlands. The sediments are currently deposited and regularly removed by barge to cells at the Leslie Street Spit for disposal. Without removal, they would fill in the Keating Channel and divert the flood flows across the immediately adjacent harbourlands. The sediments will then be deposited on the harbourlands surface. To control this process, a section of the harbourlands will be confined by a ring dyke of roads and jetty walls that will form a settling basin for the Don sediments. An outlet in the ring dyke will allow the Don floodwaters to pass into the inner harbour after coarser sediments have been deposited.

The design and operation of the Don settling basin (the Delta/Marsh) will require ongoing review to ensure that the sediments are confined to the allocated space and to recreate the historic marsh landforms. This will be an ongoing operation because it will depend on the flood flows that occur, upstream changes in the basin and on the plan that evolves for the marsh.

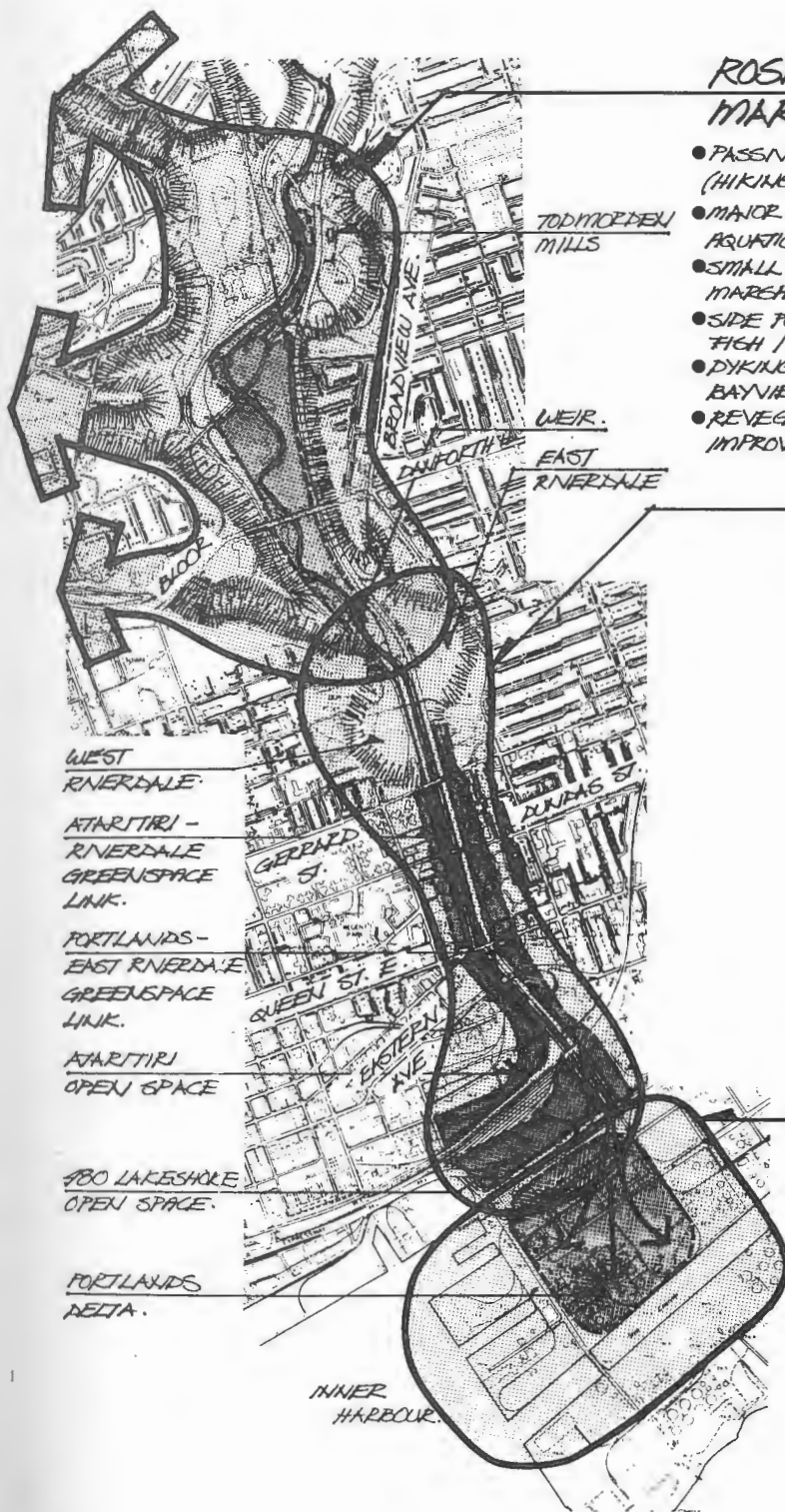
Apart from its hydrological and habitat creation merits, therefore, the concept has the advantage of greatly reducing dredging and eliminates barging costs (currently estimated by MTRCA at between \$500,000-\$600,000 per year). In the context of future Floodplain Management policies, current assumptions by MTRCA that dredging will be required in the Keating Channel in perpetuity should be re-evaluated based on further study using hydrological modelling.

## **7.3 The Rosedale Headpond, Marshes and Meadow Habitats**

### **7.3.1 Hydrology**

The purpose of the headpond is to increase the difference in elevation between the headpond at Rosedale Valley Road and the Keating Channel, so that river sediments may be flushed down to the mouth to create the proposed delta. The headpond is formed by a fixed crest "weir" at 78 metres above sea level which will impound water behind it during floods, extending





## ROSEDALE MARSHES.

- PASSIVE RECREATIONAL ACTIVITIES. (HIKING, BOARDWALKS, INTERPRET.)
- MAJOR NEW FLOODPLAIN/ AQUATIC HABITAT
- SMALL STONE WEIR TO CREATE MARSH HEADPOND.
- SIDE PONDS DREDGED TO CREATE FISH / LITTORAL EDGE HABITAT.
- DYKING TO PROTECT RAILWAY AND BAYVIEW AVENUE FROM FLOODING.
- REVEGETATION AND HABITAT IMPROVEMENT OF SIDE RAVINES.

## RIVER CHANNEL.

- LINEAR MASSSED AND FORMALIZED PLANTINGS.
- NEW, SEPARATED PATHWAY SYSTEM.
- RE-CONFIGURATION OF FENCES AND R.O.W.'S
- PASSIVE RECREATION AND INTERPRETIVE NODES.
- STAIRS DOWN FROM BRIDGES.
- MAJOR NEW GREEN SPACE. LINK BETWEEN ATARTIRI AND WEST RIVERDALE, WEST OF BAYVIEW EXTENSION.
- TILTED FLUSHING CHANNEL WITH POOL / RIFFLE SYSTEM
- FUTURE REDEVELOPMENT TO ADDRESS THE RIVER.

## PORTLANDS DELTA.

- PASSIVE RECREATIONAL / EDUCATIONAL OPEN SPACE.
- BIO-PHYSICAL LINK; RIVER-LAKE.
- BIOLOGICAL RESEARCH.
- NEW DELTA AND WETLANDS HABITAT.
- PERIPHERAL HIGHER DENSITY, MIXED COMMERCIAL AND INDUSTRIAL 'GREEN INDUSTRIES'

FIG. 40- STRATEGY PLAN.





the present natural floodplain of the river. It is expected that under normal spring flood conditions water will rise to elevation 80. For very large floods, the weir walls should be designed to be overtopped, allowing the extreme peaks access to the traditional lower floodplains. As floods recede, the floodplain will return to a dry condition and a low-flow channel will form, leading into the channelized river south of the weir (Figure 41).

The weir could be constructed of boulders or limestone blocks and integrated into the landscape with no vertical land change to avoid any imposition on the valley and to allow the unimpeded passage of fish.

### 7.3.2 Biology and Habitat

Under dry conditions, the floodplain would become a series of meadow, bottomland vegetation (willow, Manitoba maple, dogwood) and wetland habitats greatly enhancing the habitat and wildlife diversity of this area (Figures 42 and 43). Permanent wetland ponds can be maintained either by retaining a greater amount of floodwater by an adjustable weir at the outlet; or excavating small ponds by local dredging. These may be designed in a similar form as the Humber or Rouge river ponds, but they will require occasional re-dredging to maintain their depths.

### 7.3.3 Water Quality

There are opportunities to integrate some storm sewer outfalls into the wetland system, by intercepting outfalls at appropriate locations away from the river (off line ponds) with impoundment ponds to permit sediments to settle out. These would be directed through marshes before entering the main river channel. The effect of settling ponds and aquatic vegetation on the water quality of storm sewers (when these have been separated from sanitary overflows) is significant (Figures 44 and 45).

Ministry of Environment guidelines for settling ponds indicate that ponds designed to settle out fine particles (40 microns) taking 24-48 hours to settle, have appropriate water quality for warm water fish.

Considerable investigation has been carried out in Ontario, across Canada and abroad on the use of both artificial and natural marshlands in the renovation and polishing of municipal wastewaters through the removal of contaminants including toxins such as

metals and inorganic and organic toxins. In these cases, the flow regime and hydraulic and contaminant loadings are generally contained within defined limits. However, contaminant removal efficiencies determined from such investigations provide good insight into the capability of marshlands situated in receiving water streams in renovating urban runoff discharges to these streams.

### 7.3.4 Open Space and Recreation

Diverse recreation opportunities become available when hydrology and habitat creation are combined in the valley. Appropriate activities and programs include:

- creation of picnic sites and rest areas;
- some potential for community or allotment gardening;
- walking, jogging and cycling routes;



*Timber overlook*

- sitting, viewing and reflection;
- bird watching (one of the fastest growing recreation activities in Canada);



*Audubon Park Zoo, New Orleans*

Landscape Architecture Feb./Mar. 1985

- interpretive programs and facilities for school groups and the public on the restoration processes underway and understanding the nature of river valleys and floodplains;
- ongoing research potentially based in the Don Valley Brickworks "Don Centre";



*Gazebo*

- access from the Rosedale Valley ravine, Park Reservation Drive ravine, the Moore Park ravine, from East York via a possible pedestrian bridge.

### 7.3.5 Staging and Management

In the initial stages, sediments brought down from upper reaches of the river will fill the floodplain area taking a period of approximately two to three years before sediment is transported down the river chan-



*Gazebo with boardwalk*

Garden Design, Autumn 1990

nel. As sediments are deposited on the floodplain during floods, the central channel may require dredging from time to time with a dragline or backhoe to maintain flows. Other aspects of the floodplain to be developed over time would include the dykes, wetlands, boardwalks, walkways and related recreational and interpretive features.

### 7.3.6 Land Use in the Rosedale Marshes Area

The residential buildings adjacent to the Rosedale Marshes are generally benign uses which have few detrimental impacts upon the valley, provided that public access is permitted at key locations. The visual and environmental impact of development between the nearest street and the top of the bank should be regulated to protect the sense of place of the valley.



*Avoca Ravine*

The few remaining industrial and utility uses within this part of the Don River Valley are clearly in conflict with efforts to increase its qualities as a natural system. Open storage yards, parking lots, transformer stations, salt storage and other similar activities should be relocated to adjacent industrial areas as a long-term strategy.

### 7.4 The River Channel

The slope of the river channel is increased from practically zero to 0.175 percent to allow flushing of sediments down to the river mouth and the creation

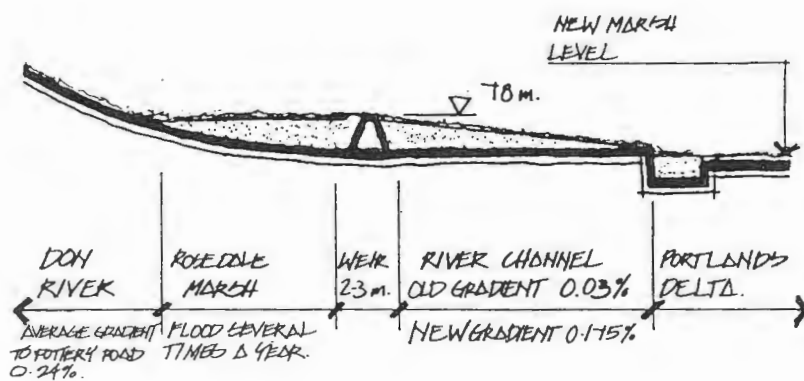


FIG. 41 - SECTION - WEIR/RIVER CHANNEL



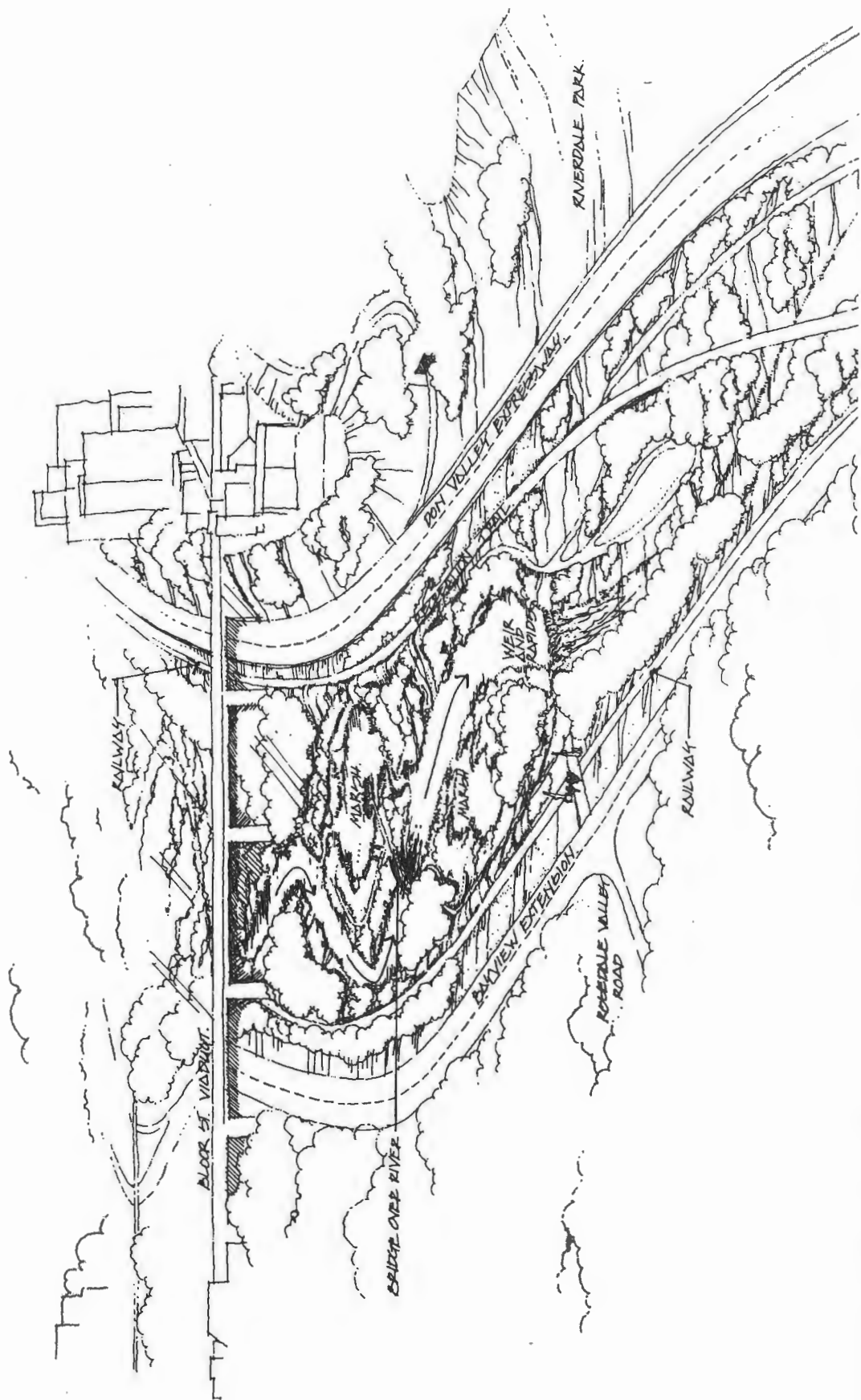


FIG. 42 - PERSPECTIVE - ROSEDALE-MARSHED STRATEGY.

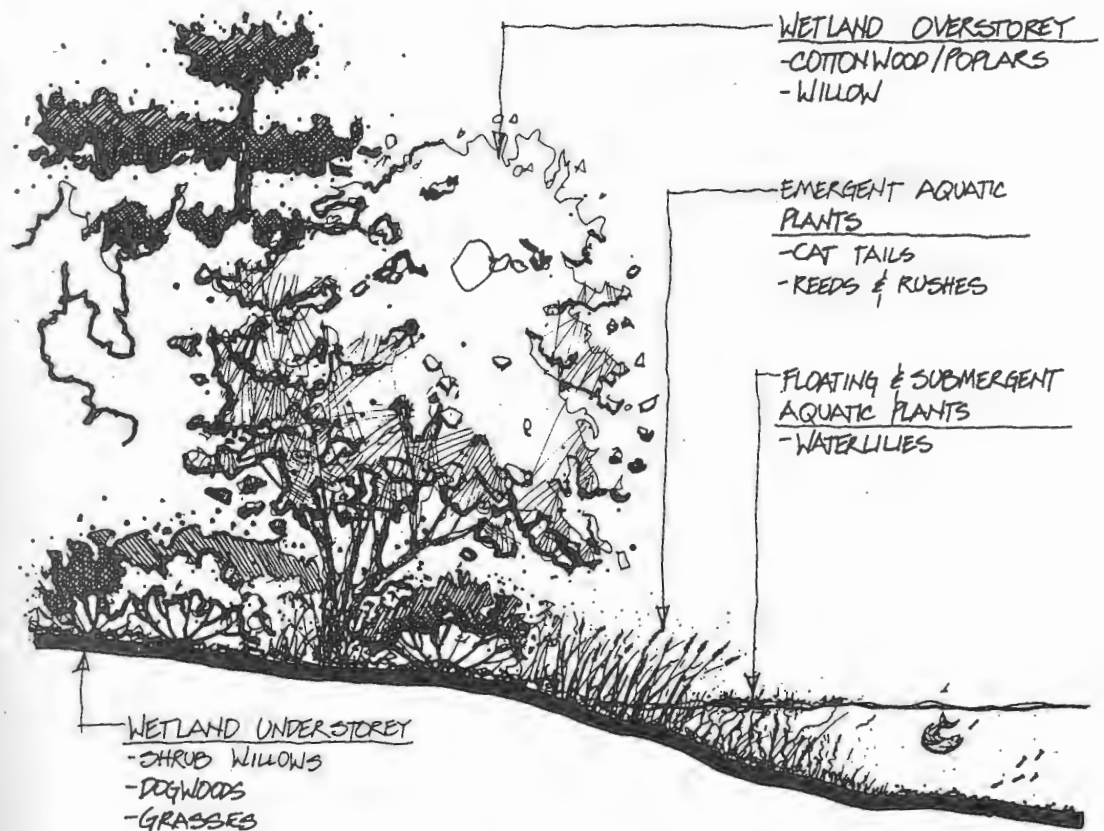


FIG. 43 - LITTORAL EDGE

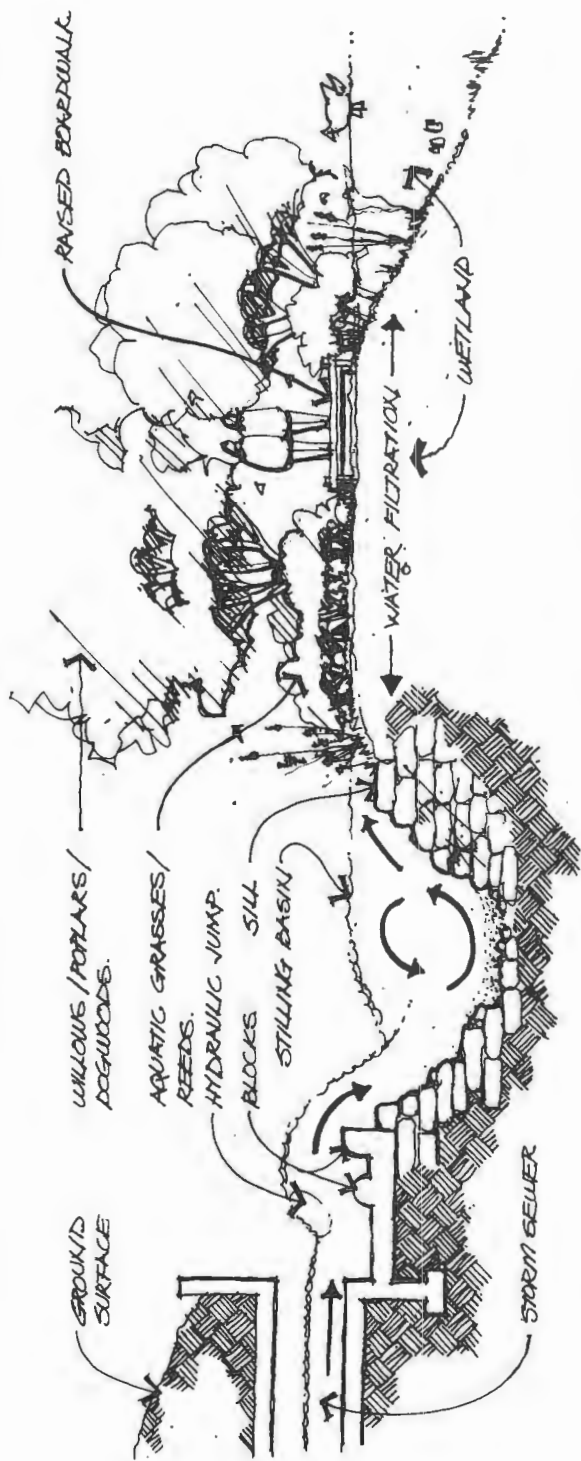


FIG. 44 - SECTION - SEWER OUTFALL POND/MARSH SYSTEM

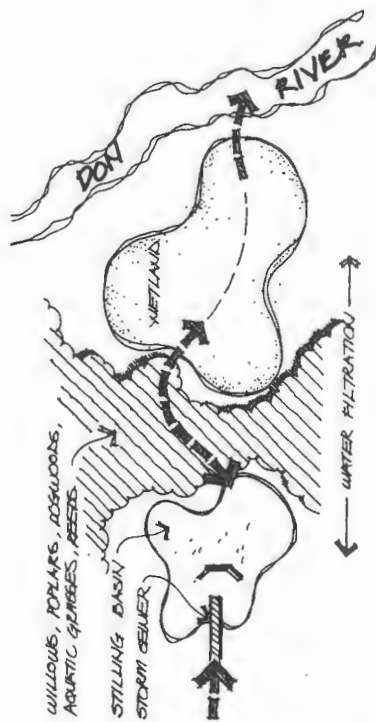


FIG. 45 - SEWER OUTFALL POND/MARSH SYSTEM



of the delta. The banks on either side of the channel would be raised at the upper (weir) end to contain flows during moderate floods. They would return to existing grade just upstream of the CN bridge crossing and be linked to the elevation of the ring dyke and other floodplain dyking required for the Ataratiri project. The banks could be constructed with limestone block and backfilled with clay and materials dredged from the headpond, or from the lower Portland area (Figure 46). Rock riffles (rapids) would be placed in the channel at regular intervals to create pool and riffle conditions during low flow periods.



Rollo Myers

*The Don River Channel*

#### 7.4.1 Biology and Wetland Habitat

It will be essential to create a wetland habitat that is diverse and where conditions allow fish to swim from the harbour to the upper reaches of the river. With this in mind, the channel will incorporate pools and riffles (rapids) into the slope using boulders or rock "weirs". Similar stepped channels have been researched in western Canada to restore fish passage and habitat conditions to channels that are similar in size to the Lower Don.<sup>1</sup> The natural spacing of the

rock "weirs" should be about 6-7 times the natural bankful width of the river. This represents the average length of one natural horizontal meander loop which contains one pool and one riffle; in effect creating the same river characteristics in a vertical dimension that occur in a horizontal one. At this spacing, the rock placement is reinforced by regular flood flows.

For the two kilometre reach (length) of the channelized river, low rock weirs would be equally spaced every 100 metres or so apart to create 20 cascades with crests that follow the increased gradient from the harbour to the Rosedale weir (Figures 47, 48 and 49). The landscape character of this landscape type would be heavy planting of trees along the canal edges. At low flows, the weirs will create pools and riffles that are necessary to maintain fish passage and resting habitat. Riffles also assist in the aeration of the water and creates sound as it flows over the rocky shallows. At high flows, the weirs are submerged. Their effect on the channel gradient and flood capacity is limited.

Tree planting of willow, cottonwood and similar fast-growing wetland species will greatly assist river habitat, in part by providing a measure of shade and water cooling and in part from the detritus from leaves and insects associated with the trees. Shrub planting along the channel will assist in creating edge habitat for some species of birds and animals.

#### 7.4.2 Open Space and Recreation

Given that the river is channelized and is constricted by buildings, roads and a railway line, its landscape character is more formal and urban than the Rosedale floodplain. Trees lining the banks, grassy slopes and shrub and vine planting along edges to help screen out the rail line and expressway, will create a linear urban greenway character. The opportunities for recreation and access will, therefore, be influenced by this character. Realistically and within the Task Force's 2001 timeframe, activities will be confined to the west side (Figures 50 to 54) and should include:

- the creation of separated bicycle and pedestrian routes;
- a set-back of the chain link fences separating the river bank from the CN/CP line to allow more space (a minimum of ten feet) for bicycles, pedestrians and rest areas;



- observation and resting places for fishing, picnicking, contemplating the river and interpretive information. The river's changing sights and sounds, created by its rapids and pools, could provide varied and interesting sensory experiences along the route. Sculpture could be included at focal points along the way.



Landscape Architecture, September 1989

*Seattle waterfront*

An open space link should be established between Ataratiri and Riverdale Park to continue the riverside park initiative contained in the Ataratiri plan. The acquisition of existing buildings over time will help focus new development along River Street on the river and provide an essential greenway corridor throughout the river system (Figure 53).

#### 7.4.3 Land Use in the River Channel Area

The Don River Valley in this area is currently dominated by transportation and utility functions and the river itself is treated as an open storm sewer channel. For most of this century, the adjacent neighbourhoods have largely turned their backs on the Don River Valley, which was (correctly) perceived as an unpleasant and impenetrable barrier. However, adjacent land use patterns will begin to change with the development of Ataratiri, which is designed to face the river and provide open space linkages across the rail corridor and along the river. This treatment should be extended north and south along both sides of the river from the Ataratiri site.



National Geographic, June 1990

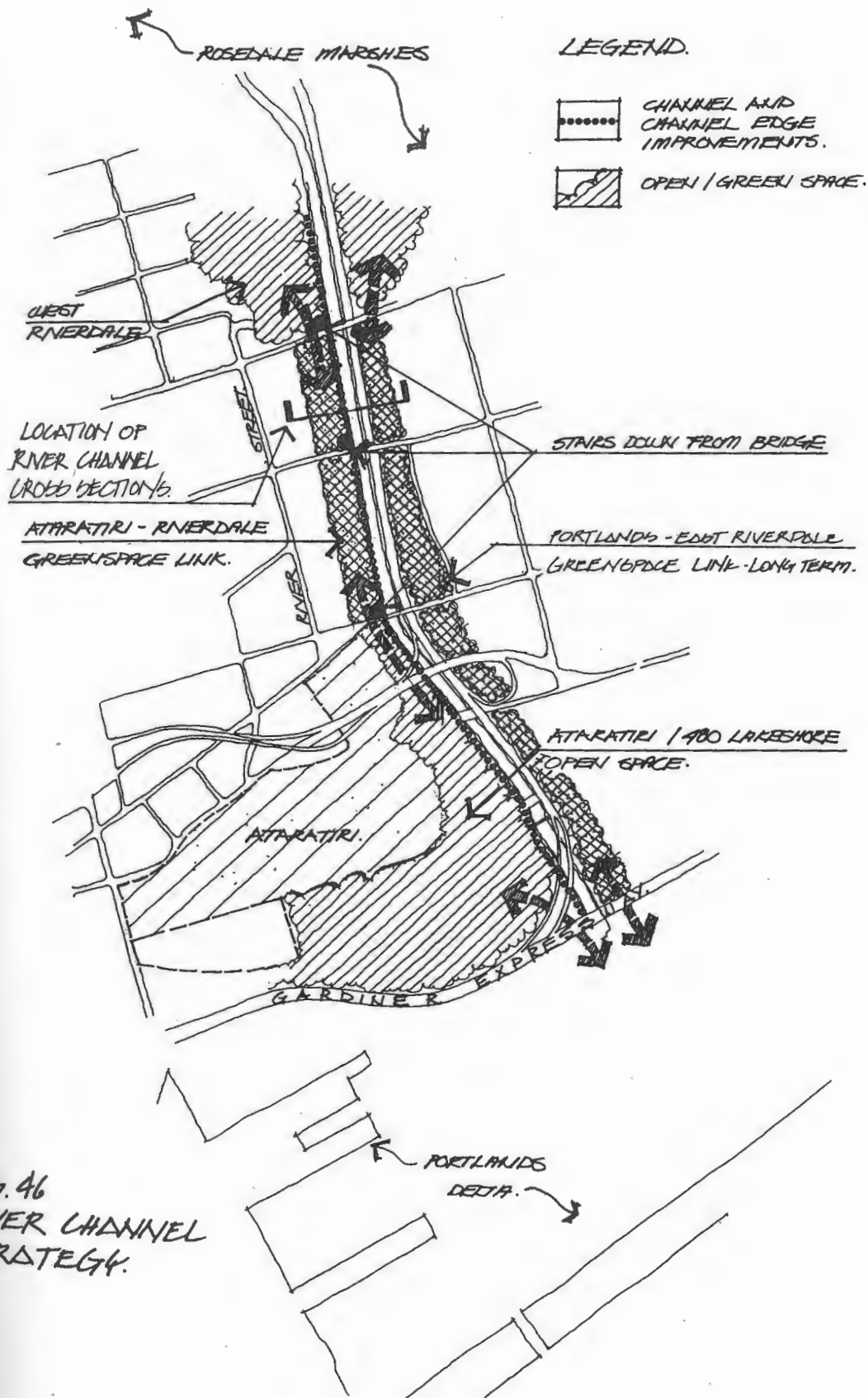
*Charles River, Boston*

The residential buildings in the Queen/River area north of Ataratiri generally are oriented to River Street and present blank walls or parking garages as facade to the valley. Redevelopment of properties in this area should encourage public access to the valley and buildings which are oriented to the valley.

The residential portions of south Riverdale are separated from the valley by a thin band of industrial development. (It is a sad commentary on the state of the Don when Riverdale must be "buffered" from the River.) Industrial activities are *not* inherently incompatible with an adjacent river valley, provided that they do not pollute the local environment or completely block public access. Several local industries

*Saskatchewan River, Saskatoon*





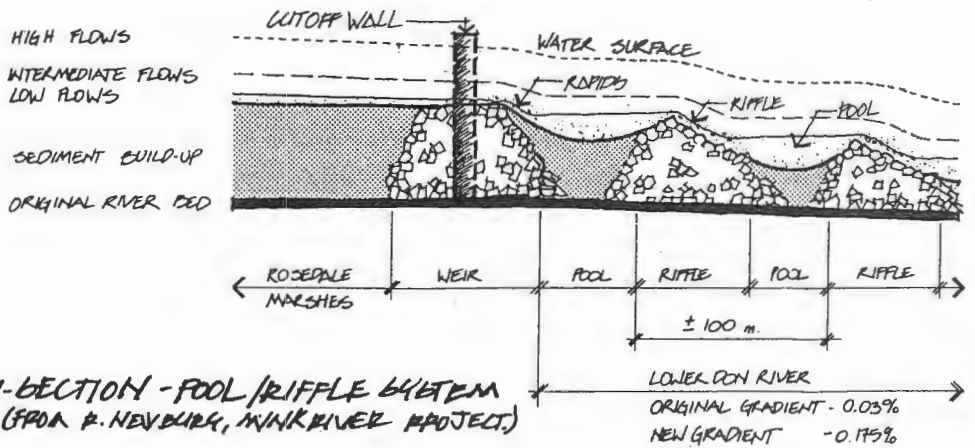
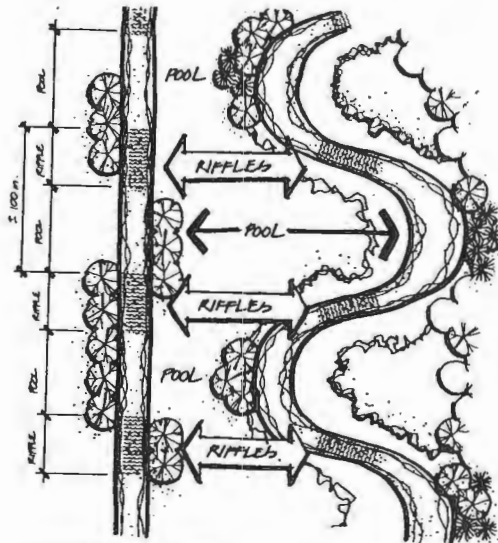


FIG. 47 - SECTION - POOL/RIFPLE SYSTEM (FROM R. NEWBURY, WINK RIVER PROJECT)



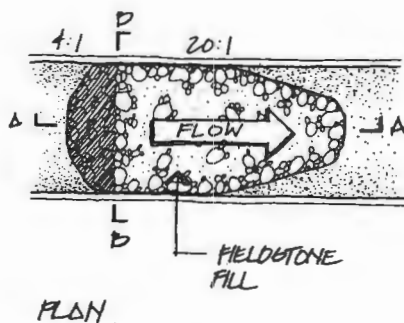
**BIOLOGICAL FACTORS**  
 POOL-RIFPLE SEQUENCES PROVIDE VARIETY OF HABITATS FOR FISH / INVERTEBRATES, COVER DURING HIGH FLOWS, AGGREGATION, SPAWNING BEDS, AREAS FOR DEPOSITION OF SEDIMENT / COLLECTION OF DETRITUS (LEAVES, ETC.)

POOL / RIFPLE SEQUENCE ALLOWS CONTINUOUS FISH PASSAGE.

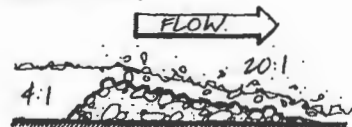
**CHANNELIZED RIVER**  
 REPLICATES POOL-RIFPLE SEQUENCE OF MEANDERING RIVER

**PRE-CHANNELIZED RIVER**  
 NATURAL MEANDERS

FIG. 48 - CHANNELIZED POOL/RIFPLE SYSTEM.



SECTION A-A.



SECTION B-B

FIG. 49 - CONSTRUCTED RIFPLE

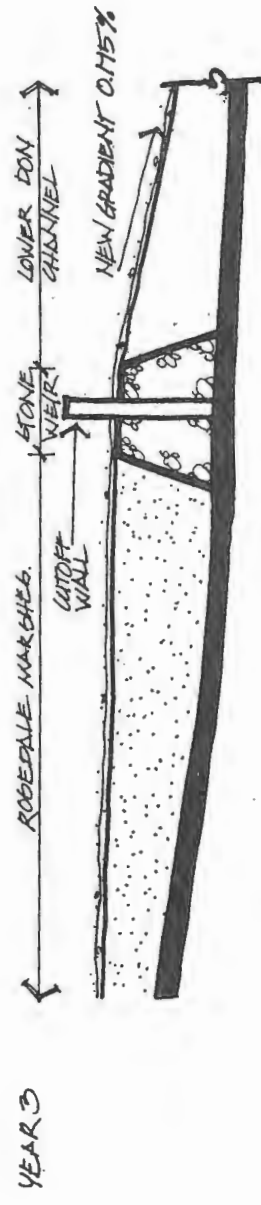
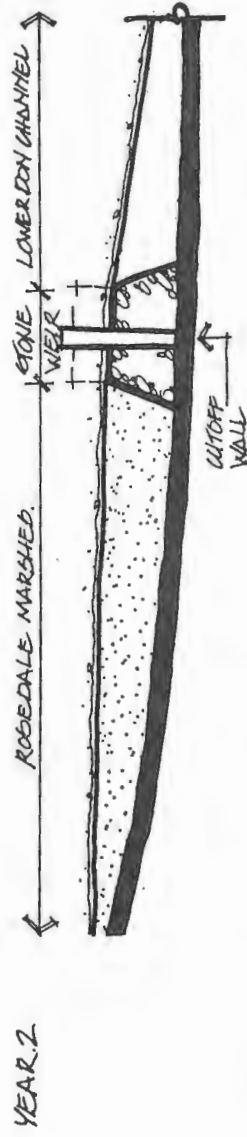
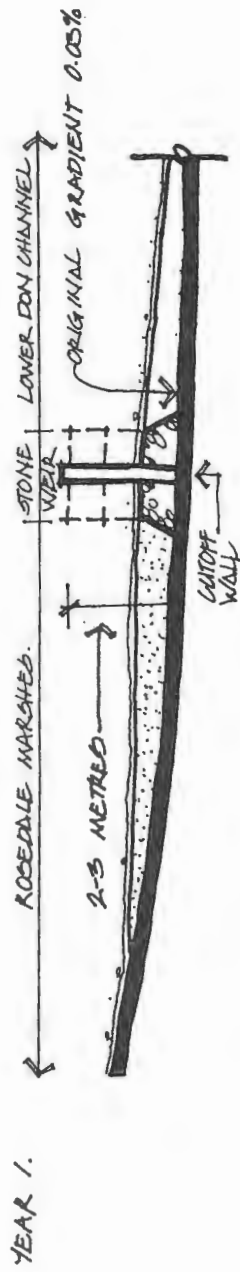


FIG 50 - PHASED WEIR IMPLEMENTATION.



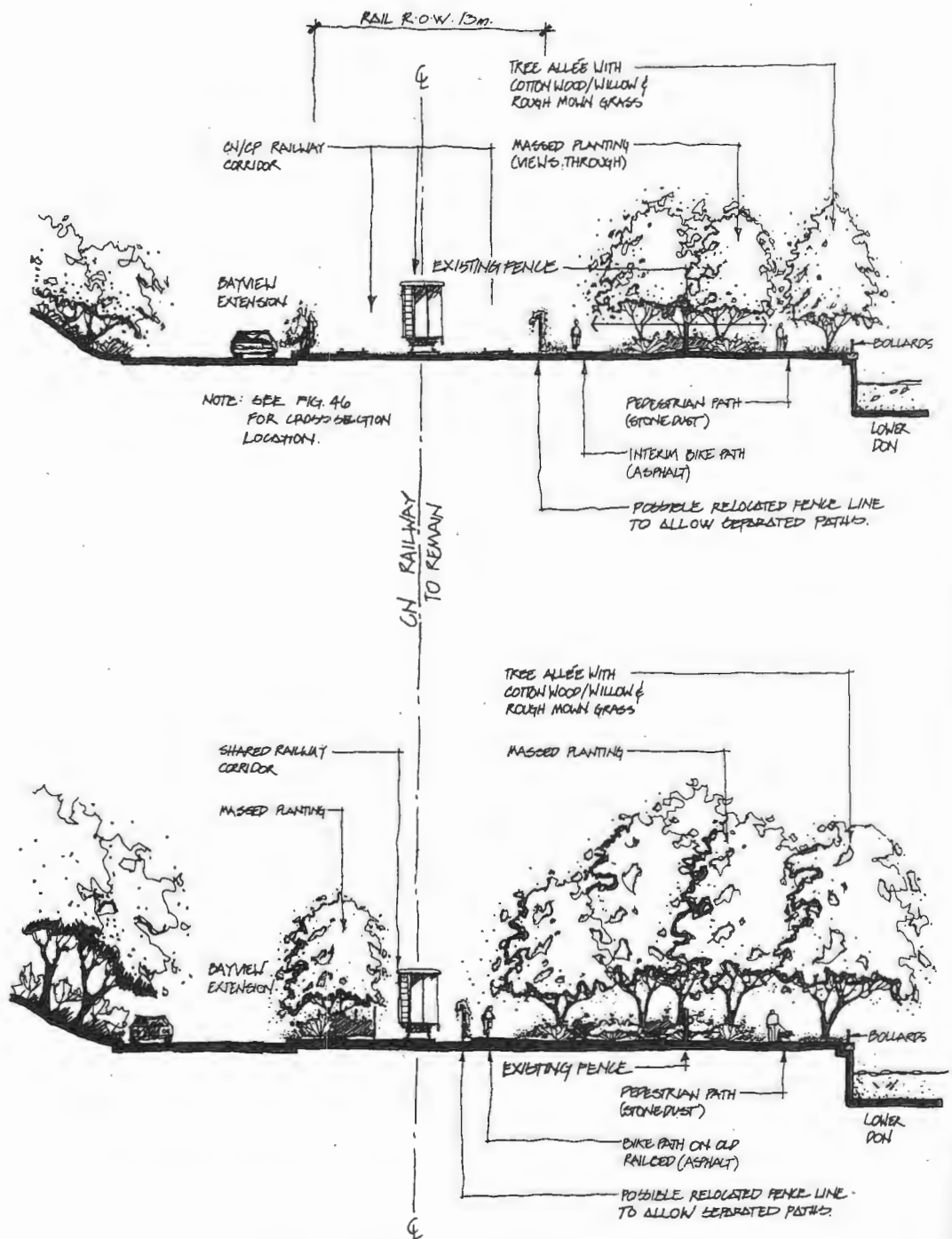


FIG. 51 - RIVER CHANNEL-POSSIBLE PATH LAYOUTS.

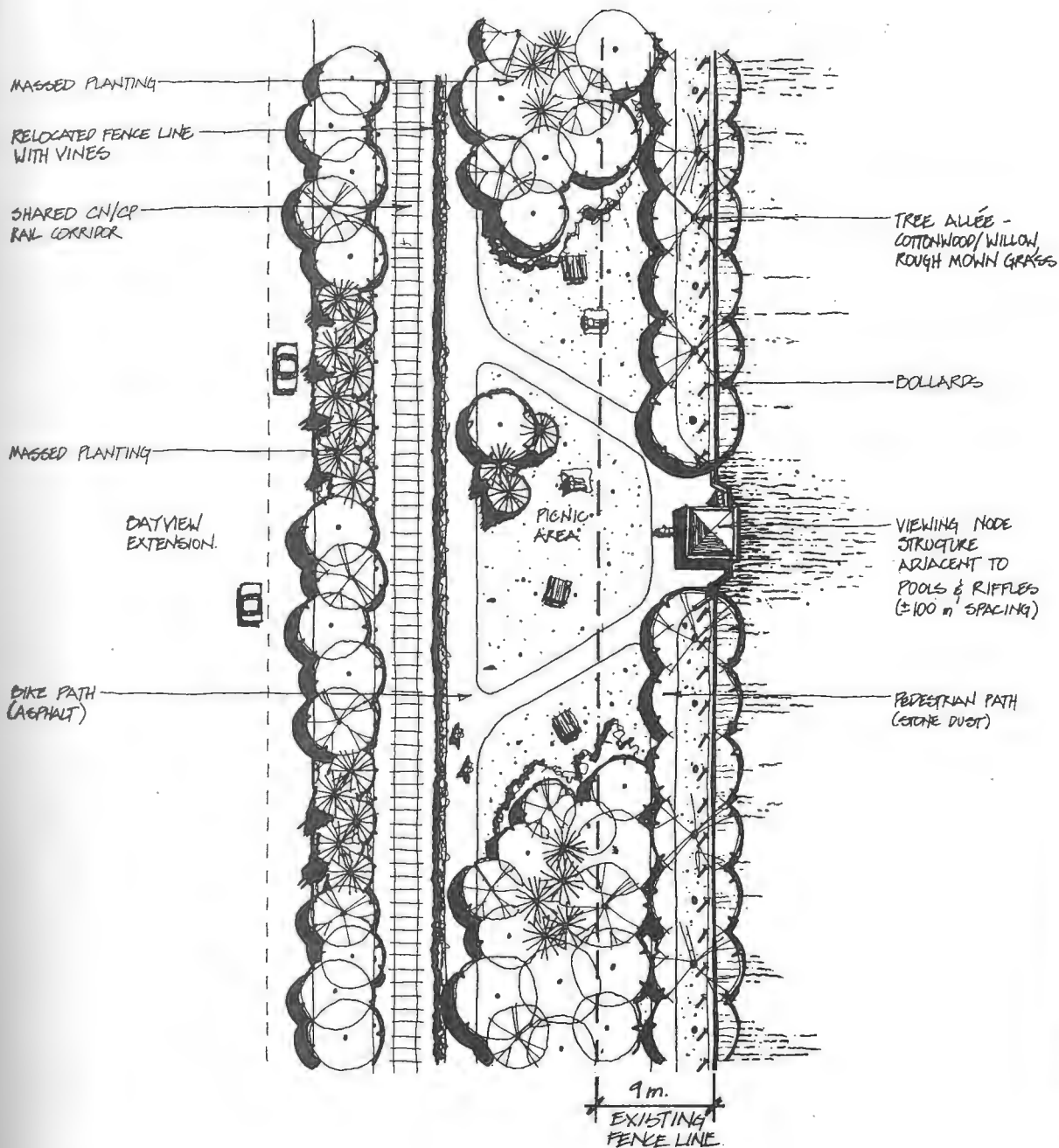


FIG. 52 - RIVER CHANNEL - OPEN SPACE / RECREATION STRATEGY.

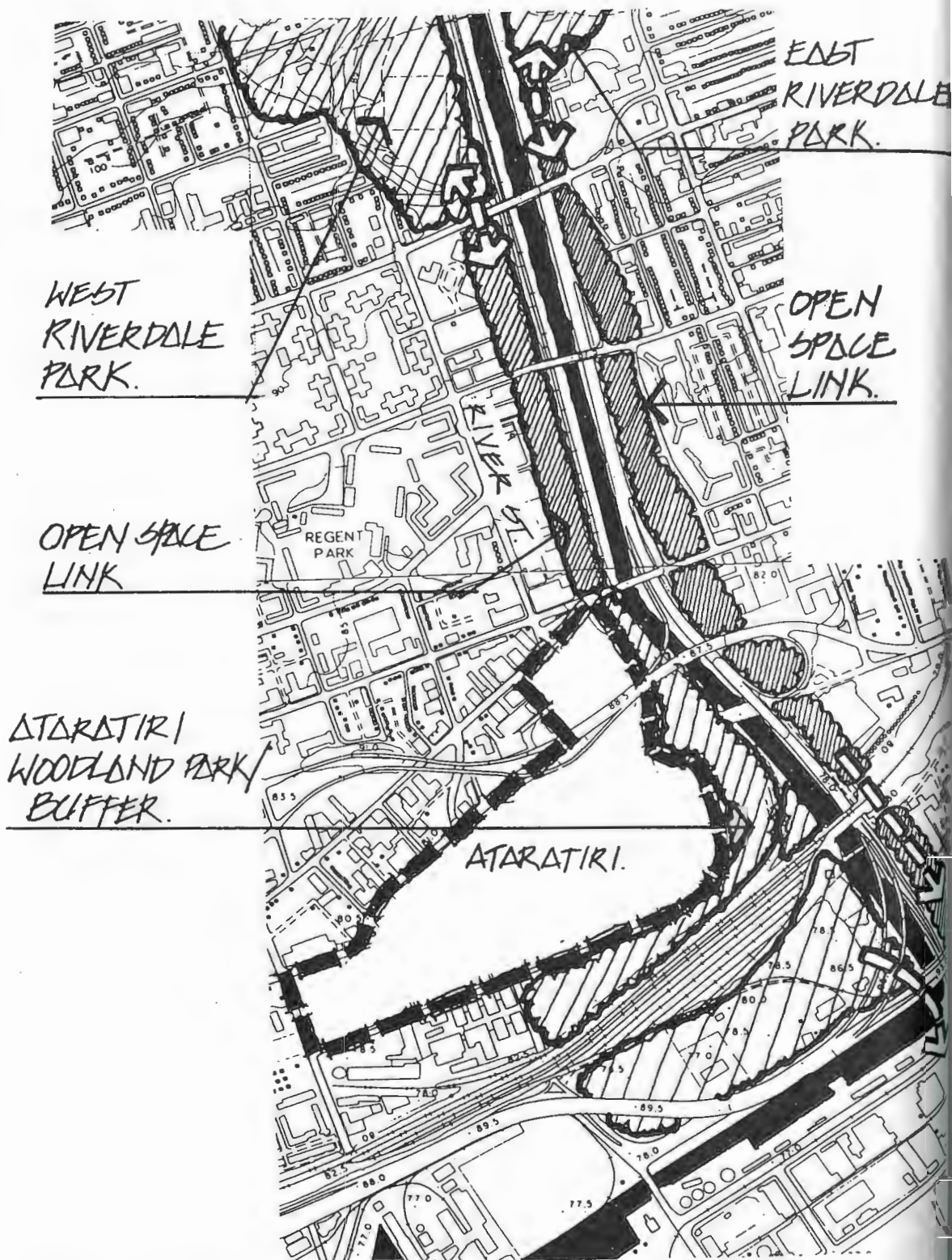


FIG. 53.- RIVER CHANNEL LINKAGES.



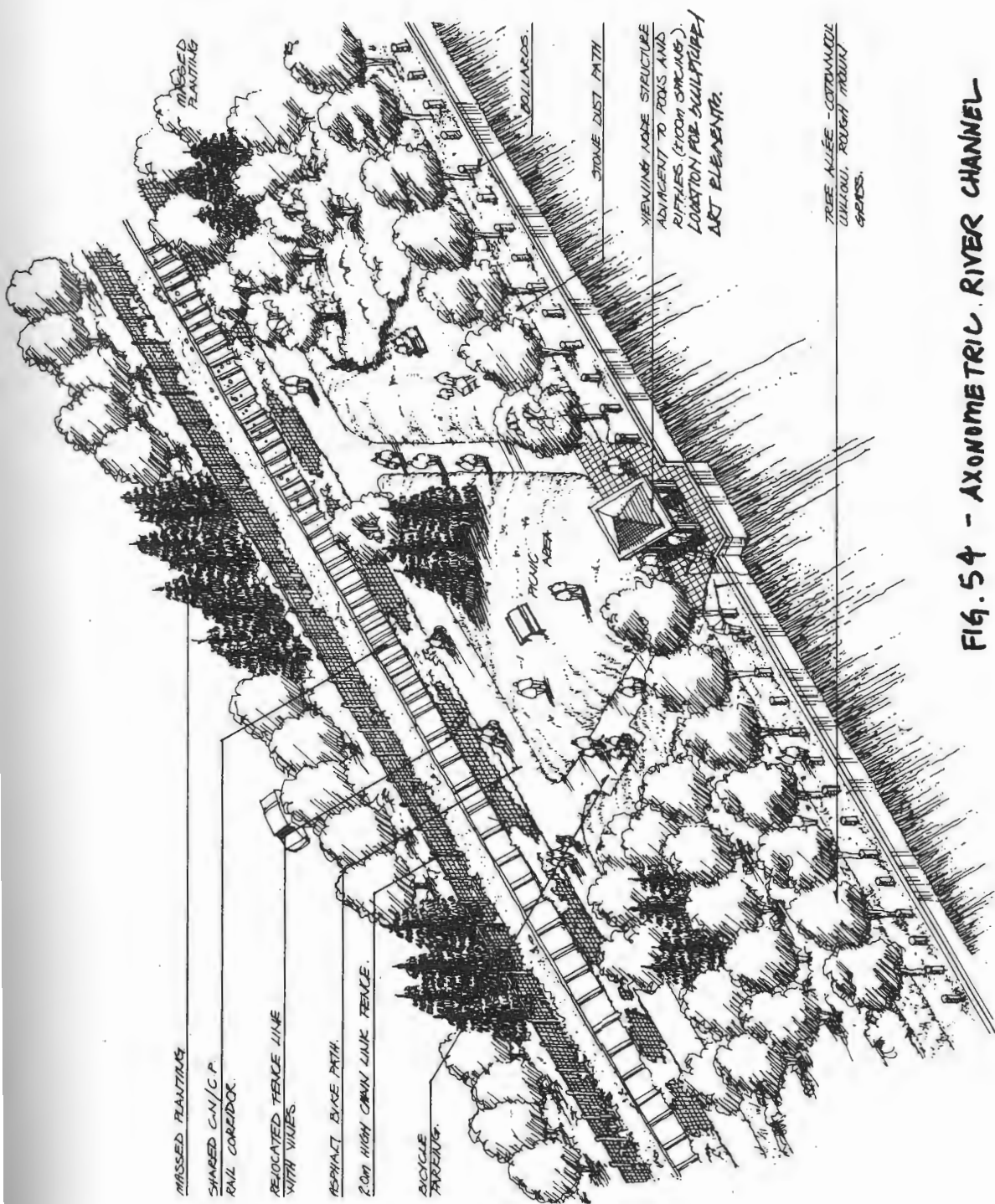


FIG. 54 - AXONOMETRIC RIVER CHANNEL





have begun programs to clean up their sites. New land use regulations should require storm runoff and infiltration improvements and prohibit storage yards, utility buildings, parking garages, etc., facing the valley.

However, industrial and commercial uses *within* the river valley are definitely in conflict with our goal of returning the Don to a more natural state. The MTRCA has acquired several industrial properties within the valley over the years and the remainder should be considered "non-conforming uses" and acquired when funds are available. Further development, or expansion of buildings below the top bank, should be prohibited.



Institutional uses adjacent to the valley are generally compatible with the plan's objectives. The redevelopment of the Riverdale Hospital/Don Jail area should provide better access to the valley and Riverdale Park and a clear separation of institutional and open space uses, perhaps by means of a local perimeter street.

The transportation and utility functions in the valley are clearly in conflict with almost every objective to this plan. While the critical importance of the Don Valley Parkway in the Metropolitan Toronto road network is recognized, every effort must be made to reduce the barrier effect of this facility to the maximum extent possible without prejudicing public safety. Similarly, the adverse local environmental effects of noise and polluted runoff must be mitigated.

The CP and CN railway tracks on the west side of the river are another formidable barrier which must be breached, without reducing their potential as a transit corridor. The few GO trains which use this corridor suggest that modern level crossing barriers could permit pedestrian and bicycle access at non-peak times.

Given the importance of these transportation facilities, they should probably be considered non-conforming uses within the natural valley, which can be permitted to continue provided that their environmental impacts and barrier effect can be mitigated. However, ownership of the lands under these facilities should be placed in the control of public agencies based on a cooperative approach, to ensure that when the lands are no longer used for transportation facilities in the future, they will revert to open space without the difficulties encountered with the Belt Line Railway right-of-way.

### 7.5 The Don Delta and Portlands Marsh

The sediments carried to the mouth are deposited in the north west quarter of the harbourlands (Figure 55), an area of approximately 50 ha (125 acres) (between the north side of the Keating Channel to the ships canal and between the western quays to the Don Roadway). Sediments would be directed into several settling basins in a phased operation. The formation of the delta is contained by a "ring" dyke and road/walkways to prevent flooding of other lands and to allow management of the delta to be controlled over time. Since there is considerable soil and sediment contamination in the portland area from previous industrial uses outlined in the *Pathways* report of the Royal Commission on the Future of the Toronto Waterfront,<sup>2</sup> a soil excavation and clean-up operation will be a required first step. A large proportion of the cleaned soil could be distributed locally, for instance, by raising the banks of the river channel and constructing dykes around the delta. The delta area would, therefore, be dropped below existing ground level, possibly close to lake level, which would have the potential benefit of reducing the impact of upstream flooding. Detailed studies of contamination problems and remediation measures will also be required.

The energy required to deposit sediments dictates the location of the delta. The closer to the mouth of the Don it is, the better it can fulfill its function naturally and for the least cost. There is also a relationship between the size of the delta and the length of time it would take to fill with sediments. The 50 ha (125 acres) of land area proposed in the concept would take several decades (20-30 years) to fill. Consequently, a smaller area would take a shorter time, a larger one a longer time. Thus, the location proposed



Rollo Myers

### *The Toronto Portlands*

is a combination of various factors that include hydrological factors, appropriateness in relation to future land uses, minimizing dredging and barging and viable biological connections to the Don river. The flushing channel should be constructed at the same time as the delta area to their final grades to avoid possible redistribution problems.

In the longest term, beyond 20-30 years, the delta could be expanded into the inner harbour. However, in view of the time frame involved any predictions on future conditions and expansion would, at this time, be highly speculative.

#### 7.5.1 Biology and Recreation

The delta provides a unique opportunity for creating an estuarine marsh habitat and aquatic life along the Toronto waterfront as well as a major open space for passive recreation, interpretation and research. They include:

- bird watching and photography;
- viewing, picnicking and walking along its boardwalks and dykes;
- educational programs on marsh restoration, the valley, the lake and the waterfront.

A field research station associated with "Green Industries" would be an important asset to the future of the

waterfront. Its purpose would be to study marshlands, rivers and urban environments, develop knowledge and technologies for long-term environmental regeneration of water quality and land and become a continuing monitoring centre for delta management.



*Boardwalk*

#### 7.5.2 Land Use and Open Space

The marsh and wetlands are envisaged as a major open space and focus for future industrial and commercial developments, similar to the Tinicom Marsh in Philadelphia and the Rattray Marsh in Mississauga. The Portlands Delta will link the Don River Valley to



*Timber overlook, Kortright Centre for Conservation*



*Tinicum Marsh, Philadelphia*

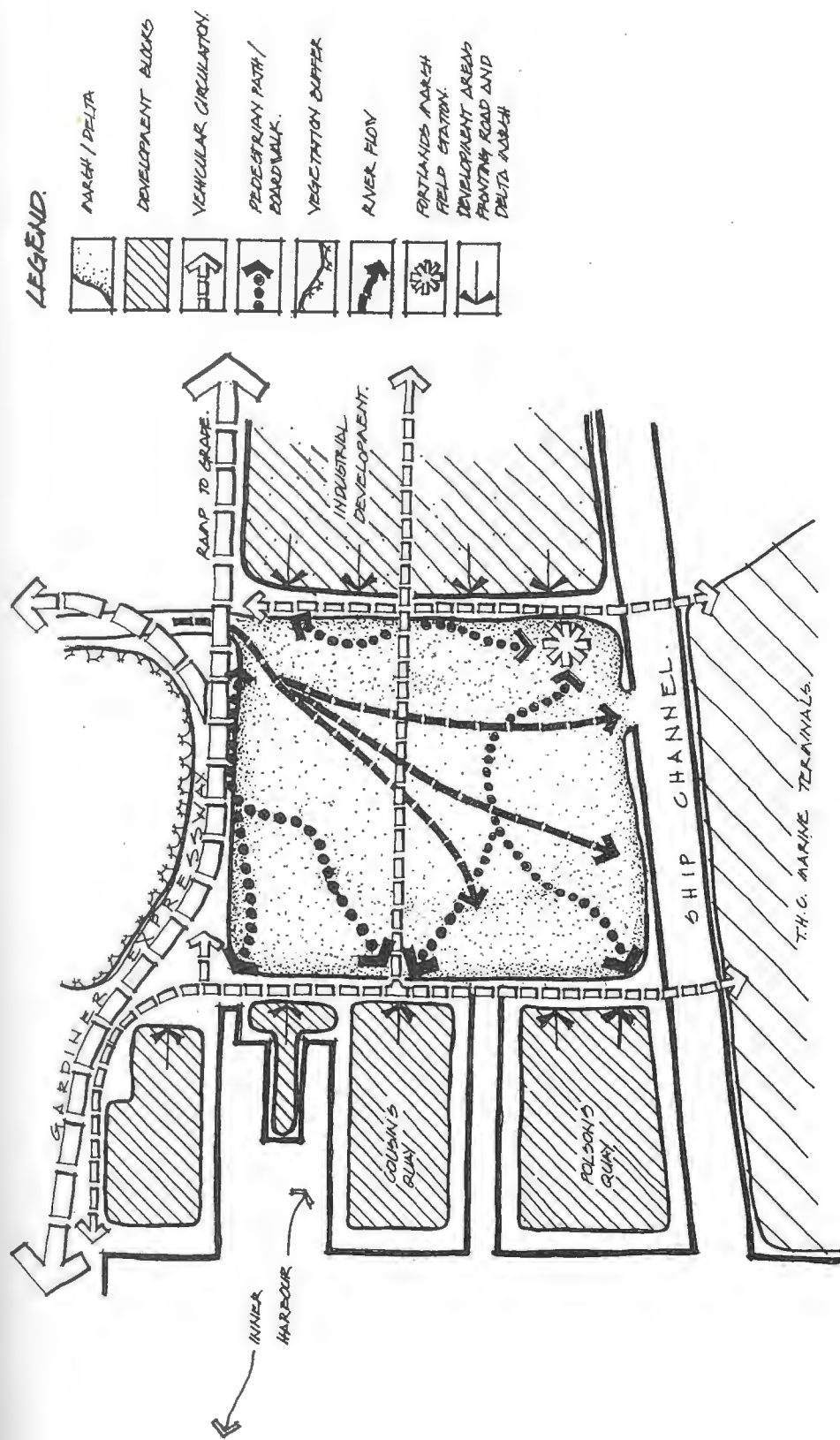


FIG. 56-PORTLAND'S DELTA/MARSH STRATEGY.





the major new waterfront open space system. This has been proposed by the Toronto Harbour Commission and the Royal Commission on the Future of the Toronto Waterfront.



*The Portlands, Toronto*

The lands proposed for the Portlands Delta and Wetlands are currently vacant or used for low intensity industrial uses. They form part of the 486 ha (1,200 acres) Port Industrial District, which has the lowest employment density in the City of Toronto (5 employees/acre). The Royal Commission Interim Report recommends that the Port of Toronto be consolidated and relocated south of the Ship Channel. The lands west of the Don River is designated as "Waterfront Regeneration Land Trust" are in the Interim Report.

The Portlands Marsh can serve as a central focus for the "green industry" which is proposed by the Royal Commission and by the Toronto Harbour Commission for this area.<sup>3</sup> This central open space can provide the appropriate setting for industrial uses at low and medium densities. Most of the low rise industrial and commercial buildings (2-6 storeys) would have attractive frontage either across the harbour or the delta. The net effect would be considerably more intense utilization of this portion of the Port Industrial District, even when the area of the new delta is included (Figures 56 and 57). It should be noted that while the role and mandate of the Toronto Harbour Commission is under review and that changes are likely to occur, the changes being proposed will have an impact on the THC's mandate over the harbour and navigation. The concurrence of the Commission will, therefore, be required.

The soils, groundwater and sediments in the lands proposed for the delta are contaminated from previous industrial uses and would require remediation

for any new use. The delta area should be included in the cleanup of the entire Waterfront Regeneration Land Trust area as part of the transition to the proposed future uses. The improved environmental quality in this area will increase the area's recreational potential as well as provide the foundation for future fish and wildlife habitat.

The delta should be designed to accommodate low impact, passive recreational uses. It should also permit the incorporation of the proposed Commissioners Street roadway and LRT extension, perhaps by means of a berm and bridge structure.

### 7.5.3 Management

The evolution of the delta and marsh will involve capital works at its inception and a program of management over several decades as sediments accumulate and as the marsh area grows. Three diagrammatic conceptual phases of development are envisaged as a basis for further and more in depth study in the future. Clearing the site, removal of contaminants and lowering the ground level of the future delta would necessarily precede the initial phase of its development.

## 7.6 Strategies Common to All Landscape Units

Four other critical factors of the strategy are common to all three landscape units and include:

- open space and recreation;
- reforestation;
- access;
- views, vistas and place;
- Part II Plan.

### 7.6.1 Open Space and Recreation Strategy for the Lower Don

The open space and recreation strategy for the Lower Don complements and reinforces the efforts to restore the natural systems of the river valley. Recreation activities which are compatible with natural systems will be stressed:

- walking, jogging and cycling routes;
- picnic sites and rest areas;
- sitting, viewing and reflection;
- bird watching, etc.

The restored Lower Don River Valley will extend the range of recreation activities available in the inner city beyond the traditional parks and active recreational playing fields found in many neighbourhoods. Natural areas for passive recreation use are generally dispersed on the edges of metropolitan areas, such as the Rouge Valley and Leslie Street Spit. The Lower Don River Valley is strategically located in the centre of the City, within easy walking distance of thousands of Toronto residents (with more planned in Attercliffe). It is close to Castle Frank and Broadview subway stations and the King, Queen, Gerrard and Dundas Street streetcar lines. In addition, the creation of a forested open space connection to the Leslie Street Spit should be a short-term priority.

The activities proposed for the Lower Don are the "recreation of the 1990s" and encompass all the fastest growing recreation activities in Ontario.

A 1980 report published by the Ontario Ministry of Culture and Recreation revealed that the five most popular year-round activities in the province are:

- walking;
- general exercise;
- jogging/running;
- swimming;
- bicycling.

Other special interest groups have produced reports in recent years that favour the retention of natural wildlife areas in our municipalities for the unorganized enjoyment of naturalists and neighbouring residents. The Toronto Field Naturalists' Club published "Toronto the Green" in 1976 and brought to many people's attention that they have an unparalleled richness of plants, animals and birds living almost on their doorstep. Reasons cited for the preservation of natural areas in cities included:

- recreational;
- aesthetic;
- educational;
- environmental indicators;
- buffering of harsh environmental conditions;
- human and environmental safety (i.e., slope stability);
- preservation of natural heritage.

The Canadian Fitness Survey released in 1981 by the Federal Ministry of Sport listed the five most common activities Canadian youth enjoy which are similar to those of the 1990 Ontario Ministry of Culture and Recreation. They include:

- walking;
- jogging/running;
- bicycling;
- ice hockey.

The links between such survey statistics and the naturalization of urban parkland are simple and persuasive; that the most popular recreational activities can best be accommodated in an open space environment that is diverse. Activities such as picnicking or ball throwing require mown turf, but walking, jogging, bicycling, quiet enjoyment, bird watching and nature oriented activities require more naturalized environments. In addition, the aesthetics of a diverse landscape that mixes structured and naturalizing environments tend to make the recreational experience more enjoyable and memorable.

These passive recreation activities reflect society's increasing interest in the environment and demographic shifts in age and family structure. It is the recreation strategy for the 21st century.

### 7.6.2 Reforestation

The reforestation of the valley is of critical importance to its restoration and involves a philosophical and pragmatic outlook to planting that is very different from conventional landscape practice. With widespread public concern for the environment and the involvement of community groups in numerous environmental issues, there are increasing demands for the protection of natural areas that include woodlands, wetlands and places for wildlife. There is pressure among public groups and, increasingly, among municipal parks personnel to modify the traditional view of parks as high maintenance grass and tree open spaces and to enrich them by creating a variety of natural places. Naturally regenerating woodland, flower meadows, ponds and wetlands through a process of natural regeneration or deliberate planting managed over time to produce mature native woodlands, are becoming a necessary part of this diversification.

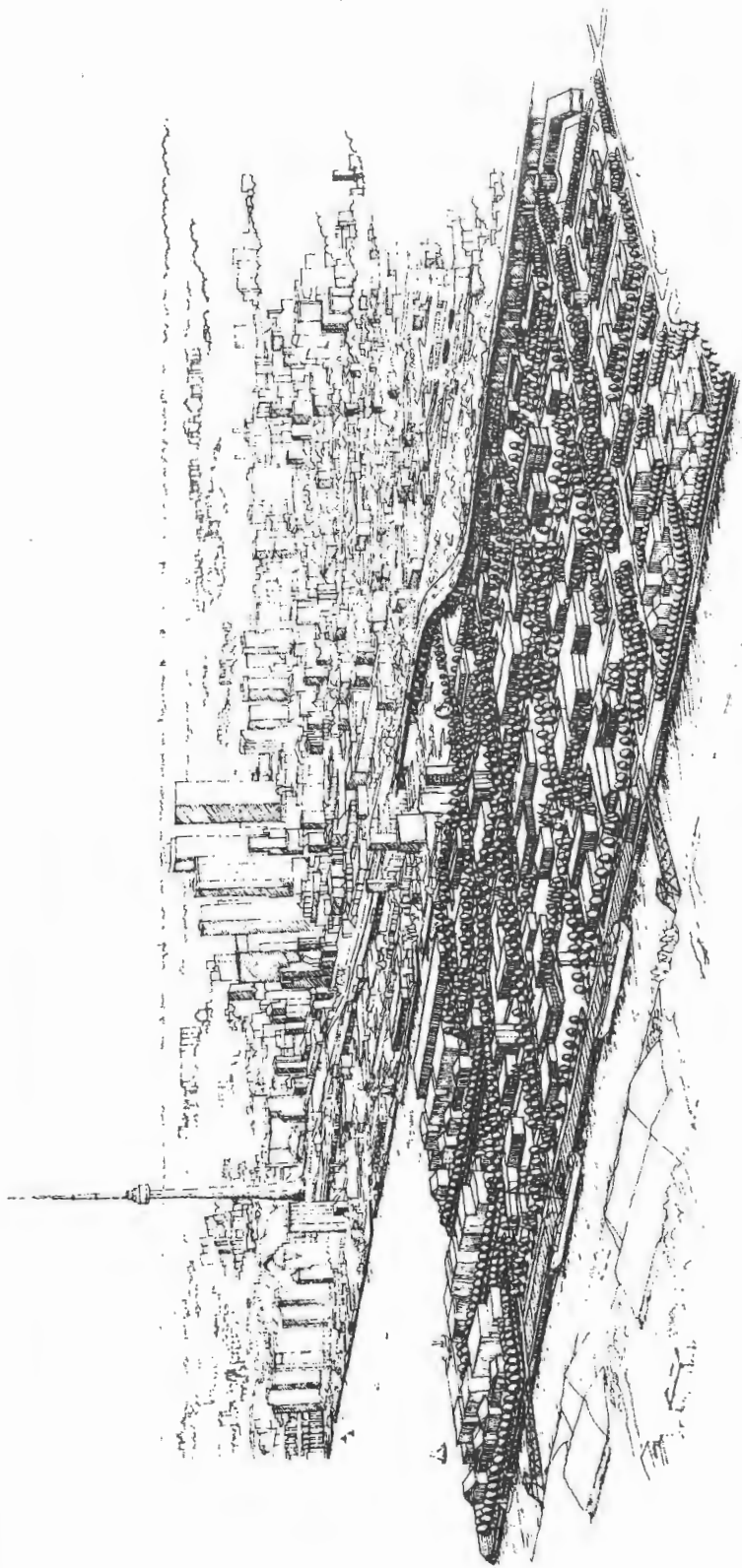


FIG: 56- PERSPECTIVE PORTLANDS - CONVENTIONAL DEVELOPMENT.



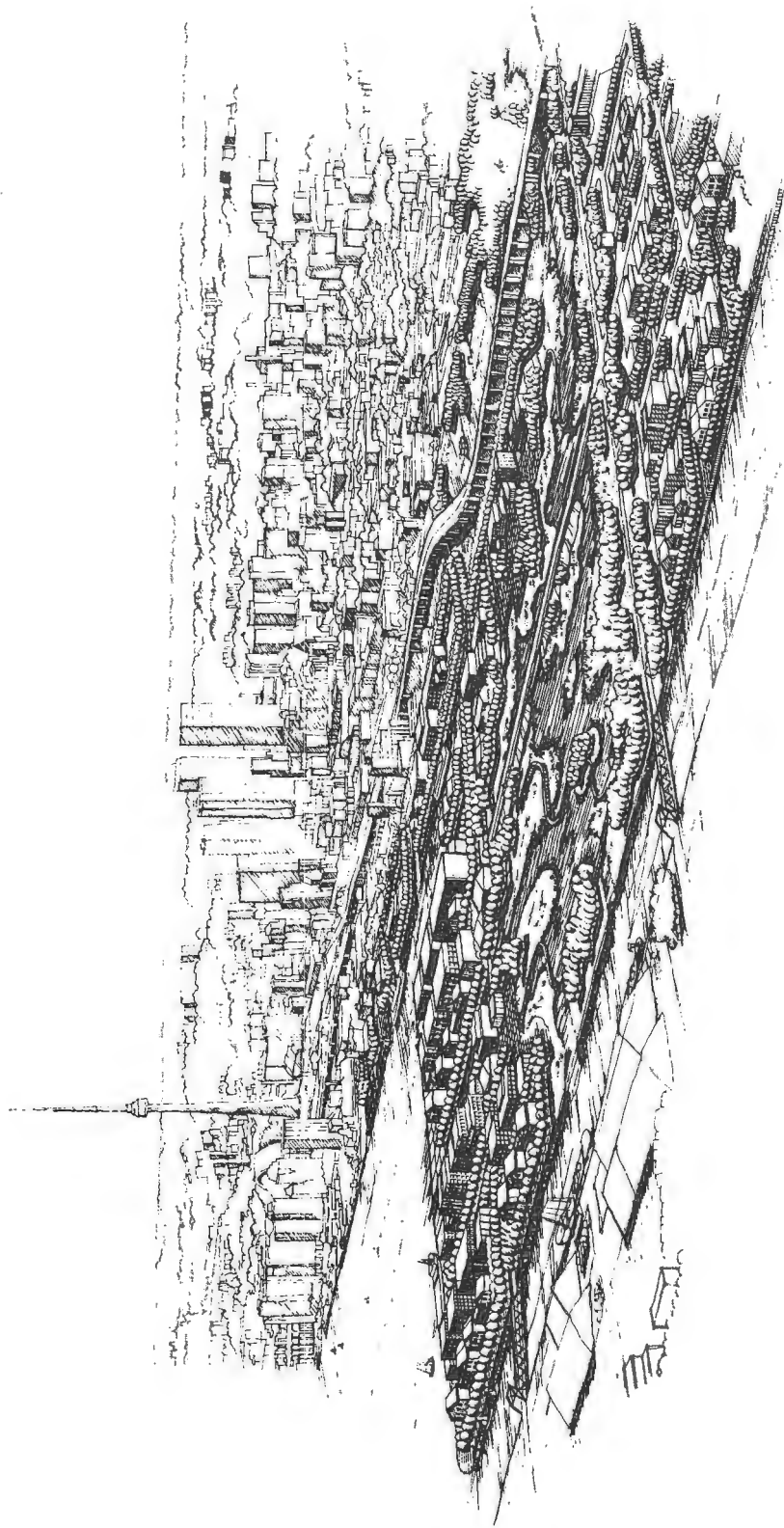


Fig. 51 - PERSPECTIVE PORTLANDS - DELTA/MAREH  
OPEN SPACE ALTERNATIVE

Restoration of the valley's slopes and floodplain must be based on this ecological approach to planting. Ecologically sound forest management practices are a central component of woodland creation. The intent is to introduce diverse plant associations that are in harmony with the site — its soils, moisture regime, drainage, climate and associated environmental conditions. Two approaches are proposed (Figure 58):

- a) natural regeneration, where conventional landscape maintenance (where it is in force) is discontinued in situations where a woodland seed source is available and where the regeneration is already appearing. In the absence of disturbance, succession occurs over time;
- b) managed succession, which is based on the principle of natural succession assisted and speeded up through management. In this approach, planting is initiated with pioneer or nurse species and evolves over time into a climax stand. The initial and final composition, character, wildlife habitat and uses of the woodland are, consequently, quite different. Site conditions initially are modified by nurse crop functions to ameliorate soils and drainage, fix nitrogen and create a micro-climatic environment appropriate to the development of climax vegetation. It should be noted that the objective is to reintroduce native vegetation along ecologically sound guidelines that simulate nature. So, while the long-range objective is a climax forest, preferences about the value of one plant association over another are not relevant. Each phase of development produces different communities, habitat and types of wildlife. As in any undisturbed valley forest community, all phases of forest development will be represented, adding diversity to the whole.

#### Priorities

The replanting strategy for the Lower Don is based on three levels of priority, beginning with what can be done easily by community groups to what should be undertaken by professional contractors. The vegetation map (Figure 21), shows existing vegetation patterns and their relative health in terms of cover and levels of complexity classified into six categories 0 to 5 (least to most complex). Based on this evaluation, the areas requiring reforestation are based on three levels of priority (Figures 59 and 60).

#### Priority 1

Short-term planting potential, comprised of mown turf, long grass, or abandoned paved/gravelled areas which have:

- good pedestrian and service vehicle access;
- high community visibility;
- high motorist visibility;
- no jurisdictional constraints;
- good soils and flat or shallowly sloped lands.

#### Priority 2

Medium-term planting potential, generally comprised of low complexity or regenerating open spaces which have some or all of the following:

- fair visibility (community and motorists);
- poor to fair access (pedestrian and service);
- potential jurisdictional constraints;
- poorer soils (e.g., landfill, steep slopes, etc.).

#### Priority 3

Long-term planting potential, comprised of low to medium complexity open spaces which have a variety of serious concerns, including some or all of the following:

- low visibility (community and motorists);
- difficult access (pedestrian and services);
- poor soils (very steep slopes, landfill, etc.);
- potentially serious jurisdictional constraints;
- land use in transition.

#### Vegetation Management Strategy

The development of woodland from the time of installation to when it becomes a self-sustaining low cost landscape involves management. The type and amount of work necessary and thus its cost, depend on the kind of woodland the City is trying to achieve.

While it is recognized that the fundamental basis for this reforestation project in the long run relates to environmental and social values rather than to commercial forestry, management processes provide opportunities for multi-functional values that may also include some economic return as a byproduct of major objectives. The process of developing woodland

involves cutting and thinning of trees, for which a return on initial investment can be made in firewood, veneer, or, in later stages, timber.

Deciduous woodlands, once established, are permanent landscape features evolving over a hundred years or more. As the naturalization program evolves over time, the City can establish a policy of integrated management where environmental, social and economic values each play a part. The specific management criteria for the different types of woodland landscapes will reflect site specific conditions and objectives.

During the initial maintenance period of approximately three years (or until canopy closure), the survival of plant material and maintenance procedures should be evaluated. These results can then be incorporated in the development of maintenance guidelines for naturalized areas. Cost comparisons of different approaches will be useful for budgeting purposes.

Detailed management plans should be drawn up based on the general guidelines proposed in this report. Management for meadows and wetland may not change significantly over the years, but for areas to be reforested, management plans should be reviewed and amended as the planting matures in accordance with management objectives. A strategy that is continuous over time is essential for the successful establishment of native woodland. We recommend that four distinct phases of the management plan be drawn up as follows:

- Phase 1 Upkeep until canopy closure  
(0-5 years);
- Phase 2 Initial establishment of climax species  
(5-15 years);
- Phase 3 Thinning of pioneer species  
(15-25 years);
- Phase 4 Gradual removal of pioneer species and  
thinning of climax species (25 years +).

The management of meadows may be minimal, as once established they can remain stable for many years. Periodic removal of invasive woody vegetation may be required where the perpetuation of meadow communities is the objective. Alternatively, the meadow may be mown once or twice a year to achieve the same end at less cost. Under this latter

management approach, mowing should be delayed until late fall, after seed-eating migratory birds (such as the finches) have left.

In areas where a meadow is to be used for passive recreation, occasional mowing to maintain a rough but species-rich turf may be the most economic approach to management.

Newly established or regenerating wetlands are in themselves self sustaining, but may require occasional selective removal of woody vegetation. It should be noted that a greater diversity of wetland species may be achieved faster if the natural regeneration process is assisted through the introduction of wetland plants.

Management of the marshes will require more detailed study at a later stage, where issues of the impact of contaminated water on the long-term health of marsh vegetation, the requirements for harvesting of marsh vegetation and maintenance of habitat will be examined in greater detail. It should be noted, however, that while most submergents, such as pondweeds, do release chemicals when they die, cattails (one of the most common and prolific species) have a tuber system which retains most of the nutrients and chemicals, even when the upper vegetative part dies. Different plant species have different rates of chemical uptake and efficiency in converting or retaining them.

### 7.6.3 Access to the Valley

Two kinds of access are needed to increase opportunities to enter the pedestrian network within the lower valley.

a) Stairs from existing bridges that cross the valley at:

- Eastern Avenue
- Queen Street
- Dundas Street
- Gerrard Street
- Danforth Avenue

These would provide access into the valley from surrounding neighbourhoods and should provide as a basic minimum:

- associated ramps for wheeling a bicycle;
- ramps for the disabled (in several locations to be decided at the appropriate time).



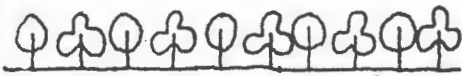
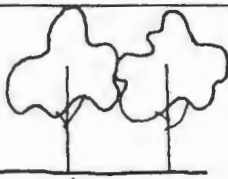
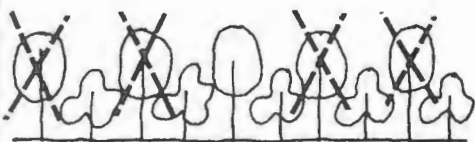
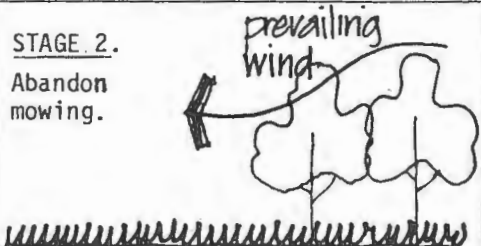
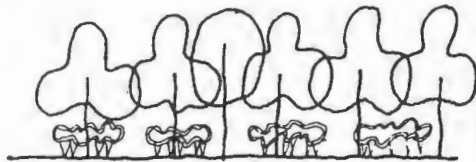
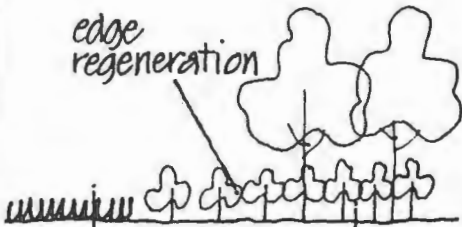
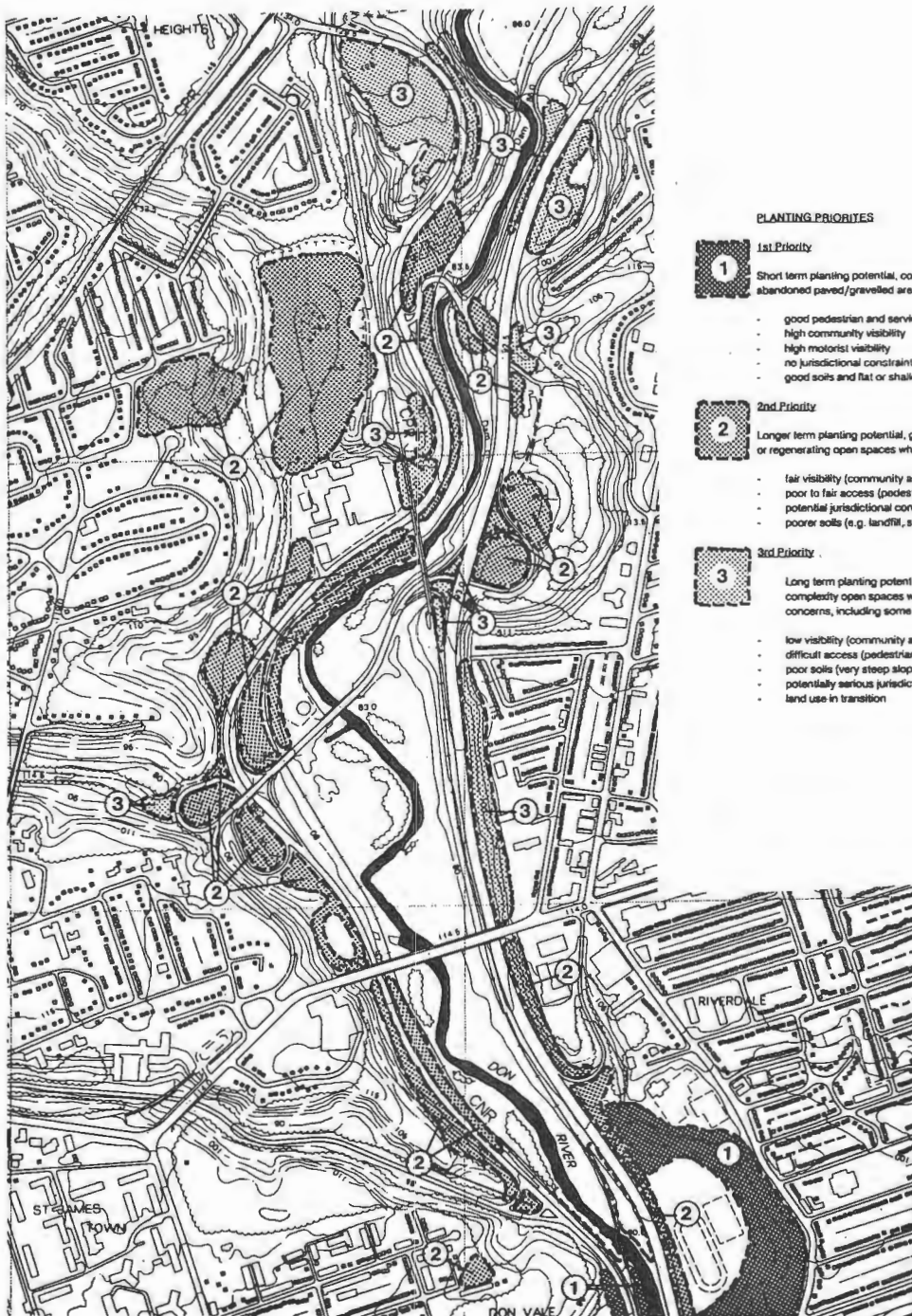
| MANAGED SUCCESSION                                                                                                                                                                                                                    | NATURAL REGENERATION                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><u>STAGE 1.</u> Establishment - pioneer and climax species mixed.</p>  <p>Typical Plant Species      Poplar Alder      Maple Basswood Hemlock</p> | <p><u>STAGE 1.</u> Existing conditions.</p>  <p>mown turf      existing woodland</p>                  |
| <p><u>STAGE 2.</u> Canopy closure and thinning.</p>                                                                                                  | <p><u>STAGE 2.</u> Abandon mowing.</p>                                                                |
| <p><u>STAGE 3</u> onward</p> <p>Mature climax woodland development.</p>  <p>understorey planting</p>                                               | <p><u>STAGE 3.</u> Regeneration.</p>  <p>meadow community development      woodland regeneration</p> |

FIG. 58 - REFORESTATION APPROACHES





#### PLANTING PRIORITIES

##### 1st Priority

Short term planting potential, comprised of mown turf, long grass or abandoned paved/gravelled areas which have:

- good pedestrian and service vehicle access
- high community visibility
- high motorist visibility
- no jurisdictional constraints
- good soils and flat or shallowly sloped lands

##### 2nd Priority

Longer term planting potential, generally comprised of low complexity or regenerating open spaces which have some or all of the following:

- fair visibility (community and motorist)
- poor to fair access (pedestrian and service)
- potential jurisdictional constraints
- poorer soils (e.g. landfill, steep slopes, etc.)

##### 3rd Priority

Long term planting potential, comprised of low to medium complexity open spaces which have a variety of serious concerns, including some or all of the following:

- low visibility (community and motorist)
- difficult access (pedestrian and service)
- poor soils (very steep slopes, land fill, etc.)
- potentially serious jurisdictional constraints
- land use in transition

FIG. 59- PLANTING PRIORITIES - NORTH OF RIVERDALE PARK.





#### PLANTING PRIORITIES



##### 1st Priority

Short term planting potential, comprised of mown turf, long grass or abandoned paved/gravelled areas which have:

- good pedestrian and service vehicle access
- high community visibility
- high motorist visibility
- no jurisdictional constraints
- good soils and flat or shallowly sloped lands



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Longer term planting potential, generally comprised of low complexity or regenerating open spaces which have some or all of the following:

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Long term planting potential, comprised of low to medium complexity open spaces which have a variety of serious concerns, including some or all of the following:

- low visibility (community and motorist)
- difficult access (pedestrian and service)
- poor soils (very steep slopes, land fill, etc.)
- potentially serious jurisdictional constraints
- land use in transition

FIG. 60- PLANTING PRIORITIES - SOUTH OF RIVERDALE PARK.



- b) The possibility of at-grade railway crossings between the Bayview Extension traffic lights at River Street and Rosedale Valley Road. These would allow access from the Riverdale neighbourhood across the road and railway line using crossing lights and gates at these points. A widened fenced pedestrian route along the Don, a rationalized use of the rail right-of-way and related issues are desirable features requiring negotiations with CN.

Other access points that are dependent on projects beyond the control of the Task Force include:

- improved connections to Castle Frank and Broadview subway stations;
- the proposal for a pedestrian bridge linking the Don Valley Brickworks to Todmorden Mills and Broadview Avenue;
- an underpass under the CN rail line proposed in the Ataratiri master plan.

#### 7.6.4 Views, Vistas and Place

In many ways, the notion of protecting, enhancing, or creating views and vistas in the Lower Don may be something of an anachronism, or at best a secondary issue. It can be argued that this is an exercise in environmental restoration in which what we see is simply the consequence of a rehabilitated valley, rather than conscious visual planning. Aesthetically, we respond positively to a healthy natural environment and negatively to one that has been degraded or abused.

However, the Lower Don is a complex mix of nature, culture and history. There is a natural emotional response to images that have evolved in the public consciousness which makes certain things valued and others rejected. In this case, an understanding of these images and being able to integrate them into



*River vignette to Todmorden Mills stack*



*View from Keating Channel outlet*

future change, assumes considerable importance to the experience and sense of commitment people have to different places. In the Lower Don, there are a number of special views and places, therefore, that should be recognized in planning restoration projects. Some of these are:

- views of downtown Toronto from the high points on the east side of the Brickworks, southbound the Bayview Extension and access ramp to the Don Valley Expressway. The Brickworks plan proposes look-out points in this location;
- views from the east slopes of Riverdale Park to the north and south. Reforestation of these slopes must accommodate not only these views, but also the toboggan runs used by children during the winter months.

A key principle in maintaining dramatic views involves framing and interruption so that interest is main-



*View from the Brickworks east ridge*

tained, the experience diversified and curiosity heightened:

- views of the ravines connecting with the valley from high points at the Brickworks looking west, from local bridges across them and also from within the valley.





*View from East Riverdale Park*

The principle here lies in ensuring that contrast between the broad sweep of the valley floodplain and the intimacy and enclosure of the ravines themselves is maintained;

- valley views of the Bloor Street Viaduct;
- views from the street bridges across the valley looking north and south.

#### 7.6.5 Part II Plan

A Part II plan study for the Don River and adjacent areas appears to be an appropriate use of existing planning instruments to coordinate City of Toronto policy. It would also incorporate consultation with surrounding areas and affected agencies through a standard planning process. The river valley and its immediate adjacent areas are a sufficiently distinct



*Todmorden Mills stack as pathway focal point*



*Bloor Street viaduct*

place that a separate Part II plan is probably appropriate, rather than "overlays" on existing Part II planning areas, which only cover a small portion of the valley at the moment.

The boundaries of the Part II planning study area should extend past the top of the bank to include at least the far side of the nearest north-south arterial street (i.e., from River Street to Broadview Avenue). The actual area which is controlled by future Part II policies should be determined during the study, but the planning policies associated with the valley should ensure that adjacent development reinforces its sense of place.

#### Special Development Control Regulations

All valley edges should be subject to site plan review under Section 40 of the *Planning Act*, 1983, including low density residential areas. In addition, the City of Toronto's Ravine and Sensitive Area policies would be extended and reviewed to include the edge of the Don Valley.

It may also be useful to consider establishing a special Valley Impact Zone (VIZ) between the top of bank and the nearest public street to control the development of lands immediately adjacent to the valley. It may be worthwhile to examine the experience of the Niagara Escarpment Commission in environmental, physical and visual regulation of a natural feature in the context of Ontario legislation.

#### Metropolitan Planning Initiatives

Metro Toronto is currently reviewing its Official Plan. The Parks and Open Space background report recommends extending the Major River Valley designation over the entire Don Valley. This recommendation

could give a symbolic beginning to a new era for the Don as a natural area, rather than a transportation corridor.

Metro Toronto could also encourage East York, North York and Markham to prepare secondary plans for their portions of the valley and coordinate the plans to ensure compatibility with the watershed approach recommended by the Royal Commission on the Future of the Toronto Waterfront.

#### Land Ownership

The fractured land ownership pattern throughout the valley will inhibit attempts to restore natural systems and provide public access. Consideration should be given to:

- consolidating land ownership in the valley in the hands of a regional public agency with a long-term mandate to restore the lands;
- initiating a partnership agreement between the various municipal and provincial governments and agencies with interests in the Don.

Even though existing transportation and utility agencies operate non-conforming uses in the valley (hydro power lines, transformer stations, Metro works yard, gas and oil lines), they will likely require continued land ownership and control, at least in the short-term. They could be granted long-term leases to operate critical public facilities, provided that the lands remain in that use. Similarly, the activities could be granted "non-conforming use" status within environmentally sensitive area zoning.

#### Open Space Links, Channelized River

The creation of a green link along the west side of the channelized river north of Queen Street is a key component of the Lower Don Strategy. Existing developments should be examined in detail in the proposed Part II Planning Study to identify those which might be acquired as part of floodplain consolidation and open space acquisition programs.

Similarly, the Part II Planning Study should examine the land along the east bank of the river, adjacent to the Don Valley Expressway to identify open space opportunities, such as the interior of the Eastern Avenue/Don Valley Expressway access ramp loop.

### 7.6.6 Environmental/Urban Design Guidelines

The relationship between the restored Lower Don Valley and the rest of the City must be carefully designed to reinforce its character as a natural valley in an urban setting – "a green seam in the urban fabric".

#### Civic Design Principles

Restoring the sense of place of the Lower Don Valley is based upon several broad civic design principles:

- public access to the valley should be simple and universal;
- there should be a clear demarcation between public and private space and between Nature and City;
- the environmental effects of the expressway and the railway should be mitigated;
- views to and from the valley should reinforce its sense of place as a natural area;
- the question of safety should be addressed in the context of access and the nature of the valley environment.

Each of these principles can be implemented using a variety of urban design tactics (Figure 61).

#### Simple and Universal Public Access

The Lower Don is perceived to be a successful open space at places like Riverdale Park where public access is simple and universal. A *north-south public street* (like Broadview Avenue) which has no private development on the valley side provides the best type of public access: people can enter the valley at any point they wish. It also provides the maximum surveillance of the valley for public safety purposes.

*Access should be provided at major east-west streets.* Where universal access to and across the valley is not possible, the best entrances should be positioned at major east-west streets, including Queen, Dundas, Gerrard and Riverdale Bridge. Other access include at grade crossings at Rosedale Valley Road and the Bayview intersection.

#### A Clear Boundary Between Nature and the City

The best urban open spaces have a *clear and unambiguous boundary* between the City and its green space, such as The Fens in Boston, Central Park in

New York and Hyde Park in London. These parks create a refuge in the heart of a major metropolitan area and the contrast between the adjacent city and the natural area is pleasing and clear.

A public street forming the edge of the open space is a key element in the demarcation between the city and nature. Broadview Avenue near Riverdale Park and the streets surrounding High Park are good examples of a clear demarcation between the City and the open space using a road.

*Buildings should face the valley.* The edge of the City adjacent to the valley is more satisfactory if the buildings present a principal facade to the Don. Not only are views to and from the valley enhanced, but public surveillance of the open space is improved. When existing buildings on the valley side of streets cannot be removed, they should be redeveloped to face both the valley and the street.

**Mitigate Impacts of the Expressway and Railway**  
Since the expressway and railway are likely to be in the valley for some time, their barrier effect, noise, visual impact and runoff should be mitigated.

Frequent east-west connections to and across the valley should be provided where the opportunity arises. They should be grade oriented and aligned with major east-west streets, as noted above.

Noise control barriers should be considered for the Don Valley Expressway. The roar of traffic detracts from peaceful enjoyment of the valley setting. These barriers are now required adjacent to residential areas.

Stormwater runoff should, over time, be reduced in the neighbourhood developments surrounding the valley and within the valley "sewershed". Water quantity and quality could be improved by mitigating measures that include:

- infiltration of water into the soil from roofs and hard surfaces;
- investigation of techniques for doing so that include infiltration trenches, porous bottom catchbasins, porous paving and runoff into soil and ground vegetation.

## 8 Capital Cost Estimates

Capital costs have been estimated in several ways.

- a) On the basis of open space improvements that would directly benefit water quality and habitat creation which include:

- the Rosedale Marshes/floodplain;
- the River Channel;
- the Portland Delta/marshes.

The total open space cost is estimated at between \$49 million and \$68 million. If the average dollar total (assumed to be \$58 million) is added to the City's sewer separation program, cost for the Lower Don sewershed only (assumed to be \$160 million based on best guess estimates drawn from published figures) then the total combined cost for enhanced water quality may be assumed to be \$218 million.

On this basis, the capital costs for habitat improvement (open space strategy) that benefit water quality would amount to approximately 26.5% of the total City's water quality program.

At the same time, aquatic vegetation contributes an additional 40%-80% of the improved water quality, made possible by sewer separation and makes, therefore, a major additional contribution to the City's efforts in this endeavour.

- b) Costs are estimated for open space improvements that benefit recreation, access and research which include all the landscape units.

The total open space costs are estimated at between \$14 million and \$19.5 million. These costs represent an average outlay of \$16.5 million. Total open space costs range from \$63 million to \$87.5 million.

By comparison, the total cost for implementing the Don Valley Brickworks Master Plan has been estimated at approximately \$30 million.



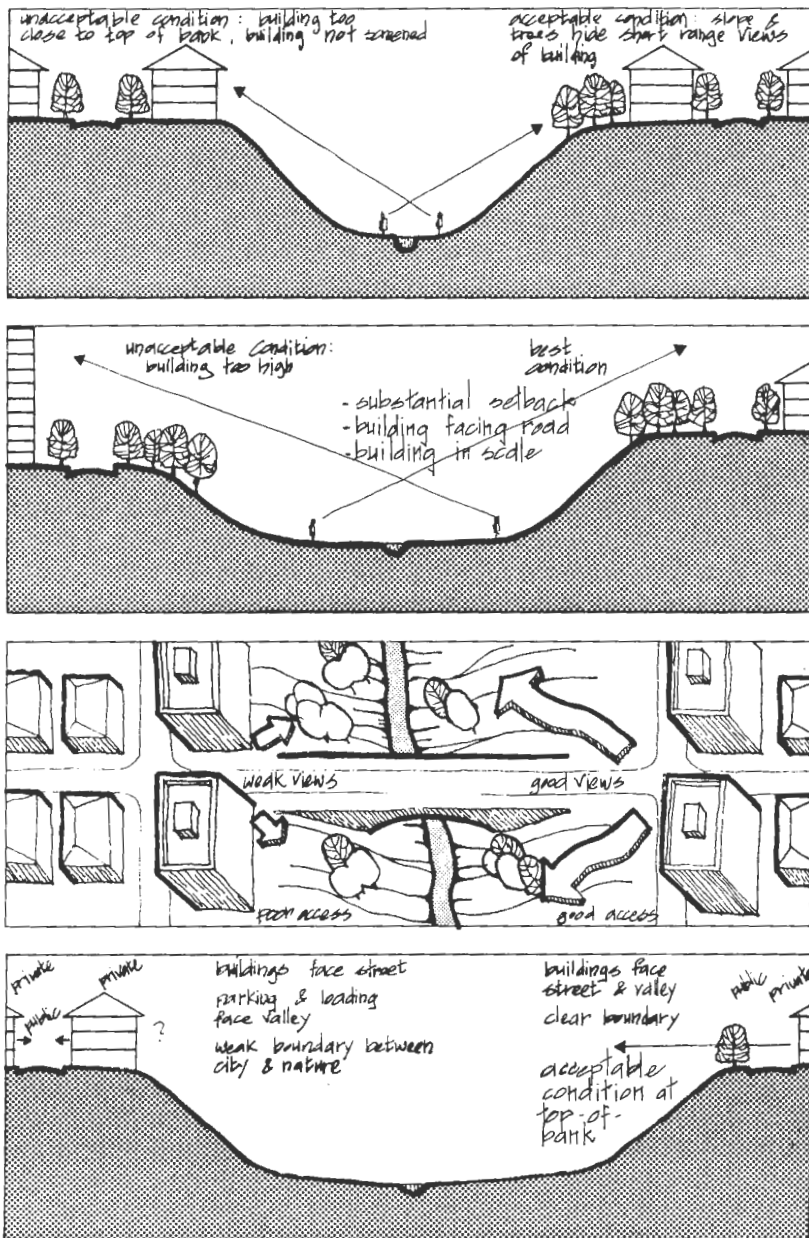
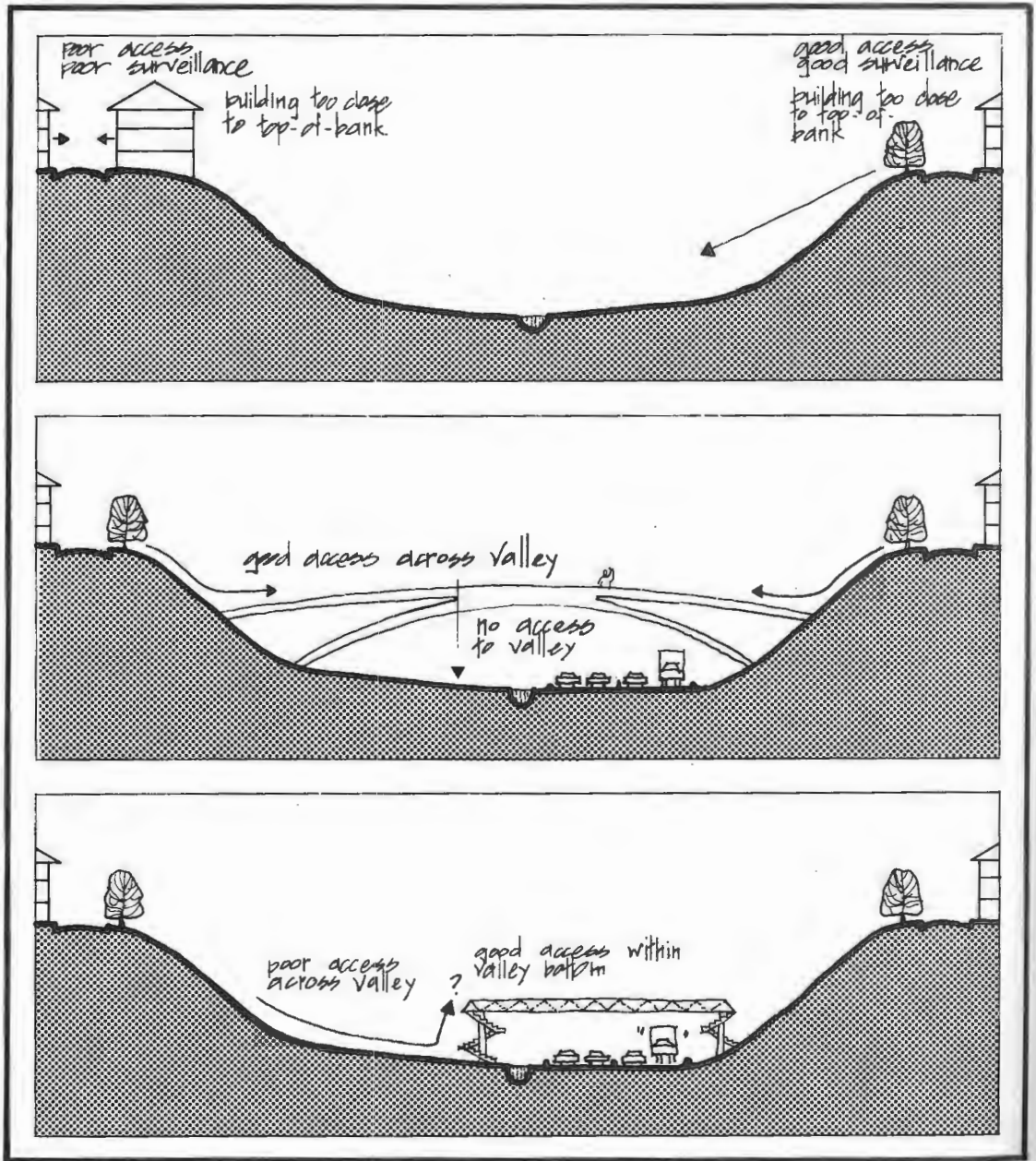


FIG. 61-  
URBAN DESIGN PRINCIPLES



## URBAN DESIGN PRINCIPLES

## 9 Phasing Strategy

Implementing the restoration strategy for the Lower Don will take many years to complete. It is a prescription for beginning a process that will last well into the future and will involve the citizens of Toronto and many levels of government. It will be clear, however, that the ideas suggested represent a bold, yet reasoned and pragmatic vision for the Don's future, not a detailed prescription for implementation tomorrow. The single most important concern is the need for political will – for the City of Toronto to buy into the vision and place it on the agenda of realistic projects to be discussed, reviewed and implemented over the next ten or more years.

The recommendations for action contained in The Strategy in Brief are based on what the Task Force believes are realistic objectives. It is recognized that the full benefits of these recommendations will not be felt for some time. It will take many years to implement the City's sewer separation program and possibly longer for water quality to be improved in the rest of the watershed. Yet, given the City's clearly demonstrated financial commitment to improved water quality in the Lower Don, the restoration of life systems and rejuvenated open space should begin now and be phased over the next ten years in concert with this program.

A realistic time-frame for implementing these restoration projects is contingent on a wide range of factors: the time required for approval by Council; the institutional strategies required to act; financial commitments and cost sharing; jurisdictional issues requiring resolution; and decisions on the future of the harbourlands will all affect the realization of the plan. The phasing proposed, therefore, makes a number of assumptions.

- a) The time requirements for the City approval process will be at least one year.
- b) The political will to implement these proposals will minimize major impediments to implementation.
- c) Phasing will set priorities, beginning with projects that can be implemented:
  - with a minimum amount of preliminary study (i.e., potentially time-consuming environmental assessments);
  - that are of reasonable cost;
  - that are community-based;
  - are single agency-based (i.e., reforestation projects, wetland creation, tributary stream restoration, Part II Plan, etc.).
- d) Phasing will continue with projects involving more complex study and negotiations, (i.e., weir at Rosedale Valley Road, flushing channel, delta).
- e) Completion of the combined sewer overflow program to enhance water quality in the Lower Don will depend on a variety of options the City will review and the need for an environmental assessment.
- f) Other redevelopment projects in the Lower Don being undertaken by Metro (Don Valley Brickworks and the Don Centre); by the Borough of East York (Todmorden Mills) and by the City of Toronto Housing Department (Ataratiri) are not included in the phasing program, but would need to be integrated into the overall long-range implementation plans at a time when the realization of these projects becomes a reality.





## End Notes

### Part 3

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## Section 3

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